

**U.S. ARMS CONTROL AND DISARMAMENT AGENCY
1988 ANNUAL REPORT**

M E S S A G E

FROM

THE PRESIDENT OF THE UNITED STATES

TRANSMITTING

THE 28TH ANNUAL REPORT OF THE U.S. ARMS CONTROL AND
DISARMAMENT AGENCY, COVERING CALENDAR YEAR 1988, PUR-
SUANT TO SECTION 50 OF THE ARMS CONTROL AND DISARMA-
MENT ACT, AS AMENDED (75 STAT. 639, 89 STAT. 760)



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FOREWORD

For more than 28 years, the United States Arms Control and Disarmament Agency (ACDA) has had the lead responsibility within the Executive Branch for the furtherance of arms control and disarmament efforts. To this day, it remains the only independent government agency in the world with such a charter.

Despite widespread management and security problems in recent years, compounded by recurring problems of personnel shortages, high turnover in leadership posts, budgetary strictures, and lessened bureaucratic power and impact, the Agency has endured and has been centrally involved in significant arms control achievements, particularly in its early years. Indeed, the light produced by the Agency has sometimes flickered and dimmed, but it has never gone out. We hope and expect that the solid core of professionals and the Agency's leadership will be more productive as arms control gets back on track and affords bold, new opportunities.

A reading of this annual report provides reassurance that ACDA is currently working to bring about significant agreements in some major areas, including the Nuclear and Space Talks, the negotiations on a chemical weapons ban in Geneva, the Conventional Forces in Europe talks in Vienna, and in the Nuclear Testing Talks in Geneva.

We and others have taken steps over the years to strengthen ACDA. We intend to have the Senate Committee on Foreign Relations and the House Committee on Foreign Affairs take a fresh and close look at the Agency in 1990 to assess how well the Agency is fulfilling its charter, what more it should be doing, and what it needs to improve. We intend to see that ACDA builds strongly upon the present base to come closer to attaining its potential.

The Intermediate-Range Nuclear Forces Treaty was a major political achievement in 1987. The initial phases of its implementation in late 1987 and 1988 went smoothly and should help pave the way to other sensible and workable verification schemes.

We hope that the Agency and other elements of the executive branch will be able to make substantial progress in several important areas of arms control so that the Administration will be able to move ahead with vigor.

High priority should be given to nuclear testing controls. When the Threshold Test Ban and Peaceful Nuclear Explosions Treaties are ratified we intend to push hard for early agreement to reduce substantially the permitted yields and the numbers of tests. We should be able to marshal the necessary support to reduce the ceiling from the present 150 kilotons to about 10 kilotons—a level that could be monitored with high confidence. We could then move down to 1-2 kilotons, and on to a level, below that. A complete ban

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can be achieved when it is quite clear that our monitoring and agreed restrictions are good enough to ensure that no cheating is possible that would outweigh the advantages of a ban.

We hope very much that the Administration will be convinced of the merits of negotiating a new treaty that moves us steadily toward the early achievement of a complete ban. The Administration should understand the vital importance of moving forcefully so that we can curb the development of new weapons, decrease our reliance upon nuclear weapons, and show other potential nuclear weapons states that we are serious about halting nuclear weapons tests.

Another top priority is START, or Strategic Arms Reduction, which is currently being negotiated in Geneva. If this negotiation succeeds, it will lead to the first deep cuts in the arsenals of the superpowers, and will be of great military significance. Both sides owe it to the world not to fail.

Third, to reinforce nuclear limits and to make certain that these limits do not merely make the world safe for conventional war, high priority must also go to negotiation of deep reductions in conventional forces in Europe. Such reductions would complement and reinforce the achievements of the INF Treaty by reducing the prospect of a war in Europe and make it still more unlikely that the sides would ever use nuclear weapons. As of this writing, there was every indication that the sides were approaching the Conventional Forces in Europe talks with a commendable commitment to an early success.

A fourth top arms control objective should be a ban on the production, storage, and possession of lethal and incapacitating chemical weapons. The use of chemical weapons in the Middle East demonstrates anew that there are nations that have and will use them. There is agreement in principle on a ban on such weapons at the Conference on Disarmament in Geneva, and agreement is possible at an early date. The Geneva Protocol of 1925 banned the use of such weapons as a reaction to the terrible gas warfare of World War I. Now, more than 60 years later, there appears a real prospect of a multinational agreement to ban not only the use but also the production of such weapons.

There are numerous opportunities waiting to be seized. The rapid pace of change in what was once known as the Soviet bloc will offer further opportunities that are now difficult to envision with precision. It is not hard to imagine that the new winds of change will bring with them a revulsion at the thought of continuing the military confrontation at the present levels of armament with the associated costs in material and personnel resources. These societies, clamoring to rebuild themselves and move in new directions, should be receptive to arms control measures that will drastically reduce equipment and manpower levels while preserving stability and security. We must be wise enough to meet these new challenges.

In addition to the annual report for 1988, this volume includes selected reports bearing on arms control and Agency activities in 1988.

As in the past, the views expressed in these reports, as in the annual report, reflect the views of the Administration and the

Arms Control and Disarmament Agency, and do not necessarily reflect the views of the Senate Committee on Foreign Relations or the House Committee on Foreign Affairs.

CLAIBORNE PELL,
Chairman,
Senate Committee on Foreign Relations.

LETTER OF TRANSMITTAL

THE WHITE HOUSE,
Washington, DC, March 14, 1989.

To the Congress of the United States:

I am pleased to transmit the 1988 Report of the United States Arms Control and Disarmament Agency. It reviews all aspects of last year's arms control policies, negotiating efforts, and the activities conducted in the process of meeting the statutory requirements of the Arms Control and Disarmament Act, as amended.

Of special interest are the sections on conventional arms control, the implementation of the INF Treaty, Nuclear Testing Talks, and the chemical weapons ban. The role of verification, a crucial element in any arms control agreement, is highlighted throughout the report.

The INF Treaty is a significant step in the quest for arms reductions. Reaching agreements with the Soviet Union on a START Treaty and a conventional arms control treaty are important objectives. We must also seek solutions to the serious problems of nuclear and chemical weapons proliferation.

While I endorse the broad approach to arms control taken in the past year, I am still reviewing specific details of the U.S. negotiating position. Statements of Administration views in the attached report, therefore, should be considered to be authoritative statements of past positions that may be subject to future modification following review.

I strongly believe that arms control should play a significant role in enhancing the security of the United States and its allies. The United States will continue to work toward effectively verifiable and stabilizing arms reductions.

GEORGE BUSH.

LETTER OF SUBMITTAL

UNITED STATES ARMS CONTROL
AND DISARMAMENT AGENCY,
Washington, DC, January 30, 1989.

The PRESIDENT,
The White House,
Washington, DC.

Mr. President: I am pleased to submit for your transmittal to the Congress, as required by the Arms Control and Disarmament Act (22 U.S.C. 2590), this twenty-eighth Annual Report of the United States Arms Control and Disarmament Agency.

Sincerely,

WILLIAM F. BURNS,
Director.

Enclosure.

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ABBREVIATIONS AND ACRONYMS

ABM	Antiballistic Missile
ACDA	Arms Control and Disarmament Agency
ACIS	Arms Control Impact Statement
ALCM	Air-Launched Cruise Missile
ASAT	Antisatellite
BWC	Biological Weapons Convention
CBM	Confidence-Building Measure
CD	Conference on Disarmament
CDE	Conference on Confidence- and Security-Building Measures and Disarmament in Europe
CFE	Conventional Forces in Europe
CSBMs	Confidence- and Security-Building Measures
CSCE	Conference on Security and Cooperation in Europe
CST	Conventional Stability Talks
CTB	Comprehensive Test Ban
CW	Chemical Weapons
DST	Defense and Space Talks
ENMOD	Environmental Modification Convention
GAC	General Advisory Committee
GCC	Gulf Cooperation Council
GLCM	Ground-Launched Cruise Missile
HEU	High-enriched Uranium
IAEA	International Atomic Energy Agency
ICBM	Intercontinental Ballistic Missile
INF	Intermediate-Range Nuclear Forces
IRM	Intermediate-Range Missile
LRINF	Longer-range Intermediate-Range Nuclear Forces
LTBT	Limited Test Ban Treaty
MBFR	Mutual and Balanced Force Reductions
NATO	North Atlantic Treaty Organization
NNA	Neutral and Non-Aligned Countries
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
NRRC	Nuclear Risk Reduction Center
NST	Nuclear and Space Talks
NTM	National Technical Means
NWFZ	Nuclear Weapons Free Zone
OSIA	On-Site Inspection Agency
PNET	Peaceful Nuclear Explosions Treaty
POTAS	Program for Technical Assistance to IAEA Safeguards
PUNE	Peaceful Uses of Nuclear Energy
RECOV- ER	Remote Continual Verification
RERTR	Reduced Enrichment in Research and Test Reactors
RV	Re-entry Vehicle
SALT	Strategic Arms Limitation Talks

ABBREVIATIONS AND ACRONYMS—Continued

SCC	Standing Consultative Commission
SCG	Special Consultative Group
SDI	Strategic Defense Initiative
SLCM	Sea-Launched Cruise Missile
SLBM	Sea-Launched Ballistic Missile
SNEC	Subgroup on Nuclear Export Coordination
SRINF	Shorter-Range Intermediate-Range Nuclear Forces
SRM	Shorter-Range Missile
SSOD	Special Session (of the United Nations General Assembly) Devoted to Disarmament
START	Strategic Arms Reduction Talks
TRAN- SEAVER	Transport by Sea Verification
TTBT	Threshold Test Ban Treaty
UNDC	United Nations Disarmament Commission
UNGA	United Nations General Assembly

1 - PERSPECTIVES

The highlight of arms control developments during 1988 was the ratification and entry into force (on June 1, 1988) of the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Elimination of their Intermediate-Range and Shorter-Range Missiles, referred to as the INF Treaty. This Treaty is the first negotiated elimination of an entire class of nuclear missiles and involves unprecedented verification measures, including extensive on-site inspection (OSI). Although the INF Treaty was an important step in nuclear arms reduction, the achievement of strategic offensive arms reductions and agreement on defense and space issues in the US-USSR Nuclear and Space Talks (NST) can make additional critical contributions to international security and stability. These latter challenges occupied the US and Soviet Delegations in Geneva during 1988.

Ed. Note: Material for this introductory chapter was adapted from a speech by Director William F. Burns, United States Arms Control and Disarmament Agency, before the First Committee of the 43rd United Nations Assembly, October 18, 1988. This chapter, which contains references to all of the 1988 major arms control issues, and Appendix I, 1988 Arms Control Chronology, serve as an Executive Summary for this 1988 ACDA Annual Report.

Although remaining difficulties should not be underestimated, significant progress was made during 1988 in developing a US-Soviet Joint Draft Text (JDT) for a Strategic Arms Reduction (START) Treaty. The basic agreed elements for 50 percent reductions in strategic offensive arms that are now reflected in the JDT include a ceiling of 6,000 warheads on 1,600 strategic nuclear offensive delivery systems, subceilings of 4,900 ballistic missile warheads and 1,540 warheads on 154 heavy ballistic missiles, a 50 percent reduction in the aggregate throw-weight of Soviet ballistic missiles to a level that will not be exceeded by either side, a counting rule for heavy bombers equipped only with gravity bombs and short-range attack missiles (SRAMs), and elements of a verification regime that will include several types of OSI and data exchange.

Several difficult issues remain to be settled, including questions regarding long-range air-launched and sea-launched cruise missiles (ALCMs and SLCMs), mobile intercontinental ballistic missiles (ICBMs) should they be permitted, a subceiling on ICBM warheads, limits on heavy ICBM modernization, and some important verification details. On two of the more complex sets of issues -- the verification and accounting of heavy bombers and ALCMs, and verification of mobile ICBMs -- considerable progress was made at the Moscow Summit in June. For its part, the United States is willing to continue the hard bargaining necessary to bring this task to a successful conclusion.

In the Defense and Space negotiation, the United States continued to seek agreement with the Soviet Union on future joint management of a stable transition to increasing reliance on effective defenses for our mutual security, should they prove feasible. Greater emphasis on

strategic defenses that threaten no one, along with reduced reliance on the most destabilizing strategic offensive arms, can offer a better and more stable basis for deterrence.

In 1988, US negotiators attempted to work toward a Joint Draft Text of a separate agreement on defense and space issues, building on the principles outlined by President Reagan and General Secretary Gorbachev at the December 1987 Washington Summit. However, the Soviet side refused to join in the preparation of such a Joint Draft Text despite their commitment to do so at the Washington and Moscow summits. The negotiators did make some progress on a Joint Draft Text of a Protocol. The United States is emphasizing confidence-building measures to provide predictability regarding both sides' strategic defense programs and to prepare for a possible transition to greater reliance on defenses. Because of President Reagan's firm commitment to move SDI forward, the United States has refused to bargain away its ABM Treaty-compliant SDI program aimed at investigating fully the feasibility of advanced strategic defenses, particularly since the Soviet Union has a comparable program of its own.

On a related matter of great importance -- the illegal Soviet large phased-array radar at Krasnoyarsk -- the United States continued to reiterate its position in the Defense and Space Talks, as well as in the Standing Consultative Commission, the five-year ABM Treaty Review Conference in August, a special meeting of experts held in Geneva in October at Soviet request and in bilateral contacts with the Soviets at the highest level that the location and orientation of the Krasnoyarsk radar makes it a significant violation of a central element of the ABM

Treaty which must be corrected without delay. President Reagan also made it clear to the Soviet Union that no future strategic arms control agreements in START or the Defense and Space areas can be concluded until the Soviet violation at Krasnoyarsk has been corrected.

In the area of nuclear weapons testing, the United States and the Soviet Union in December completed an ad referendum text of a protocol on the Peaceful Nuclear Explosions Treaty (PNET). A protocol on the Threshold Test Ban Treaty (TTBT) is expected to be completed early in 1989, at which time both protocols containing effective verification measures and the treaties themselves will be submitted to the Senate for ratification. The full-scale step-by-step negotiations on the issues continued throughout the year and the Joint Verification Experiment (JVE), held in August and September, was successful. Each side conducted a nuclear test at its own test site, with both sides using their own instruments to measure the yield. Assuming ratification of the TTBT and PNET, the United States and the Soviet Union have agreed to proceed to enter into bilateral negotiations on ways to implement a step-by-step parallel program of limiting and ultimately ending nuclear testing in association with a program to reduce and ultimately eliminate all nuclear weapons.

Conventional arms control deserves and is receiving serious consideration. The United States and its NATO allies have proposed two sets of negotiations to deal with conventional forces in Europe. In one set of negotiations, among the 23 members of NATO and the Warsaw Pact, we seek to enhance stability at a lower level of conventional forces. The other negotiation among the 35 Conference on Security and Cooperation in

Europe (CSCE) states, will build upon and expand the confidence- and security-building measures agreed to in Stockholm. Meanwhile, we are involved in the development of Western positions on conventional arms control for use in future negotiations with the Soviet Union and its Warsaw Pact allies. Western Europe continues to be the most heavily armed region in the world. Our success in negotiating asymmetrical reductions in force levels would add greatly to stability and security in Europe. President Gorbachev's pledge to reduce unilaterally six divisions from Eastern Europe is a significant and welcome step; if implemented, it augurs well for the success of the new negotiations.

The need for greater US and international efforts to arrest missile proliferation was dramatized during 1988 by the repeated use of such weapons during the Iran-Iraq war and the revelation of China's sale of CSS-2 intermediate-range ballistic missiles to Saudi Arabia. The Missile Technology Control Regime (MTCR), consisting of the United States and six other countries, made significant progress during the year in dramatizing the need to arrest missile proliferation. Intensive dialogues with China and the Soviet Union were aimed at securing cooperation in the international missile nonproliferation effort. At the same time, discussions were conducted with several other states to express concern about their indigenous ballistic missile development programs. The application of common export control policies by the MTCR partners is credited with retarding progress on a number of these projects of concern.

One of the most urgent arms control challenges facing the community of nations today is the illegal use and dangerous proliferation of chemical weapons. The best solution to this problem would be a truly global,

comprehensive, and effectively verifiable ban. In 1984, then Vice President George Bush presented a US draft text of a chemical weapons convention to the Conference on Disarmament. Based in large part on this initiative, as well as on the proposals of other participants, the Conference on Disarmament has made progress in negotiations on a chemical weapons convention. Considerable work, however, remains to be done.

In his address to the General Assembly of the United Nations on September 26th, President Reagan called on the Parties to the Geneva Protocol of 1925 and all other concerned states to convene a conference to take action to reverse the serious erosion of respect for international norms against the illegal use of chemical weapons in armed conflict. Such a conference was not intended to delay or substitute for the ongoing negotiations in Geneva on a comprehensive ban. In fact, it should give additional impetus to the negotiations. By focusing high-level attention by the governments of the world on the questions of illegal use and the dangerous proliferation of chemical weapons, we have sought broadly acceptable solutions that could be expressed collectively by the participants and a renewed international commitment against illegal use of chemical weapons.

There is broad international recognition that the spread of nuclear weapons would threaten regional and global stability. And there is wide support for international cooperative efforts to confront this threat. The Nuclear Non-Proliferation Treaty (NPT) and the International Atomic Energy Agency (IAEA) contribute significantly to nonproliferation objectives and will continue to receive strong support from the United States. The NPT has made an important contribution to international

security and to peaceful use of the atom. The fact that the NPT continues to attract important new adherents is testimony to its vitality. For its part the United States will work with all parties to make the 1990 NPT Review Conference a success and to ensure that the NPT continues to function effectively.

The United States also remains committed to making the peaceful benefits of the atom available to those who have demonstrated a responsible commitment to the principles of the NPT, or to any comparable internationally-binding commitment not to acquire nuclear explosive devices. While the growth of nuclear energy has slowed somewhat over the past decade, due in large part to the changing economics of energy, many nations will become increasingly dependent upon nuclear power as a safe, reliable, and environmentally friendly source of energy in the years ahead.

It will be necessary to maintain strong support for the IAEA, particularly its efforts to implement the best possible safeguards system on civil nuclear activities. This will require cooperation and contributions on the part of all states, especially those with substantial nuclear programs. It seems clear that the importance of the NPT and the IAEA will continue indefinitely into the future, and that they should remain key elements of international security.

As the United States and Soviet Union continue to negotiate toward significant nuclear reductions, we believe that all states must maintain their support for efforts to prevent the spread of nuclear weapons to additional countries. Nuclear weapons threshold states that have rejected the NPT cannot escape their responsibility in this area. We further

believe that parallel regional or international initiatives could be useful in reducing the risks of nuclear weapon proliferation.

Aggression and suppression of freedom on a massive scale remain in some areas of the world; the most effective way for most countries to protect themselves under such conditions will continue to be military deterrence of aggression. Therefore, we support the Charter of the United Nations which recognizes this inherent right of individual or collective self-defense if an armed attack occurs against any member state. At the same time we support the role of the United Nations in helping to restore peace by reinvigorating its utility and purpose in the area of peacekeeping.

An important US goal, a goal that most other countries share, is to make the world safer. In addition, we seek a better world -- a world where disputes are settled peacefully -- and where the rights of nations and the rights of individuals are respected and protected. We also seek a world of justice and freedom where all countries are at peace with one another and with themselves.

Arms control, during 1988, played an important role in the process of working toward the realization of the above goals. Future progress may well depend upon more arms control successes. ACDA's active participation in arms control negotiations and other similar fora and its short-run and long-run research programs on scientific, political, economic, and military aspects of national security and arms control are designed to help ensure those successes.

2 - BILATERAL ARMS CONTROL

Arms control negotiations and discussions between the United States and the Soviet Union during this year centered on Strategic Arms Reduction Talks (START), Defense and Space, the INF Treaty implementation procedures, Nuclear Testing, Chemical Weapons, and ABM Treaty adherence. This section contains details on all of the bilateral negotiations with the exception of Chemical Weapons, which are found in the Multilateral Arms Control section.

Strategic Arms Reduction Talks (START)

The outlines of a START Treaty were clarified at the Washington Summit in December 1987 and at the Moscow Summit in May-June 1988. Much was done to consolidate and build upon the progress made at these two summits, in Geneva, and at high-level Ministerials.

President Reagan and General Secretary Gorbachev noted during the Washington Summit that considerable progress had been made toward conclusion of a START Treaty implementing the principle of 50 percent reductions. They agreed to instruct their negotiators in Geneva to work toward the completion of a START Treaty, including all integral documents, at the earliest possible date, preferably in time for signature at the next Summit. Recognizing that areas of agreement and disagreement were recorded in detail in the Joint Draft Treaty Text negotiated in Geneva, they agreed to instruct their negotiators to accelerate resolution of issues within the Joint Draft Text, including early agreement on provisions for effective verification.

With these instructions in hand, the ninth round of the Nuclear and Space Talks began January 14 in Geneva. In a statement marking the opening of the round, the President reiterated his commitment to expedite work on a joint draft treaty. "A START agreement can be reached this year," he said, "if the Soviets return to Geneva ready to apply themselves with the same seriousness as the United States. The United States seeks a sound agreement, and we will not negotiate against arbitrary deadlines. It remains my operating principle that we would rather have no agreement than accept a bad one."

In Geneva on February 12, the United States presented its draft Protocol on Inspection and Monitoring, a key element in a START Treaty. Several days later, February 21-23, Secretary Shultz and Foreign Minister Shevardnadze met in Moscow, where they reaffirmed the Washington Summit commitment to an intensive effort to complete a START Treaty at the earliest possible date. They reviewed the entire complex of issues associated with the Treaty, particularly focusing on finding mutually acceptable solutions to differences which still remained. Emphasizing the importance of verification, the Ministers directed their negotiators to develop joint drafts of key verification documents before the next Ministerial in March. These documents would be a Protocol on Inspection, a Protocol on Conversion or Elimination, and a Memorandum of Understanding (on data exchange).

On March 2, the United States completed the tabling of its drafts of these documents with its presentation in Geneva of a draft Memorandum of Understanding (MOU). This fulfilled the commitment to present all three of the documents that the Ministers had said were needed to be addressed

by the negotiators prior to the March Ministerial. On March 7-11, the Soviets presented their drafts of each of the three verification documents. By mid-March the negotiators had developed joint draft texts of the documents, with disputed points indicated in brackets.

When Secretary Shultz and Foreign Minister Shevardnadze met in Washington, March 22-23, they again reaffirmed their commitment to make an intensive effort to complete a START treaty at the earliest possible date. The Ministers reviewed the three joint draft documents prepared by the negotiators and, reemphasizing their commitment to effective verification measures, agreed to have the negotiators seek to resolve the remaining differences in these documents and report on progress at the next Ministerial. For its part, the United States reiterated its proposal to conduct an early exchange of information and data to facilitate the effort to design an effective verification regime. This would help develop and tailor verification measures for each category of systems subject to START provisions. The Soviets were noncommittal to the proposal.

At the Washington Ministerial, both sides amplified their views on counting rules and definitions for air-launched cruise missiles, the US-proposed sublimit on ICBM warheads, the Soviet-proposed sublimit on SLBM warheads, the Soviet-proposed sublimit on bomber armament, the difficulties of verifying sea-launched cruise missiles (SLCMs), the complexities of verifying mobile ICBMs, and qualitative limits on heavy ICBMs. Some clarification of views on these issues was achieved.

Just prior to the Moscow Summit, May 29 - June 1, the positions of the two sides could be summarized as follows:

- o (The general approach) The United States called for a 50 percent reduction to equal levels in strategic offensive arms, carried out in a phased manner so as to achieve equal intermediate ceilings by agreed dates over seven years from the date the Treaty comes into force. The Soviets also called for a 50 percent reduction to equal levels in strategic offensive arms, carried out in two phases over seven years from the date the Treaty enters into force, with subsequent negotiations for additional reductions. The Soviets, however, continued to condition implementation of reductions upon resolution of Defense and Space issues.
- o (Delivery vehicles) The United States called for a ceiling of 1,600 on the number of strategic nuclear offensive delivery systems, which comprise deployed ICBMs, deployed SLBMs, and heavy bombers. The Soviet ceiling of 1,600 was applied to deployed launchers for ICBMs and SLBMs and deployed heavy bombers.
- o (Warheads) The United States and the Soviet Union had agreed to a 6,000 warhead ceiling, to include deployed ICBM and SLBM warheads and long-range, nuclear-armed air-launched cruise missiles (ALCMs), and with each heavy bomber equipped only for gravity bombs and short-range attack missiles (SRAMs) counting as one warhead.
- o (Warhead sublimits) The United States had called for sublimits of 4,900 ballistic missile warheads and 3,000-3,300 ICBM warheads. The Soviets, on the other hand, were asking for a sublimit of 4,900 ballistic missile warheads, a sublimit of 1,100 on bomber-carried warheads, and a warhead sublimit on SLBMs equal to the ICBM warhead sublimit.

- o (Heavy ICBMs) The United States called for a limit of 1,540 warheads on 154 deployed heavy ballistic missiles, and a ban on production, flight-testing or modernization of new or existing types of heavy ICBMs. The Soviet position was a limit of 1,540 warheads on 154 deployed heavy ICBMs; production, flight-testing or modernization of existing types of heavy ICBMs were to be permitted, but development, testing and deployment of new types of heavy ICBMs were banned.
- o (Throw-weight) The Soviets had agreed that aggregate throw-weight of Soviet ICBMs and SLBMs would be reduced to 50 percent below the existing level for their systems, with neither side exceeding this level for the duration of the Treaty. The sides had not agreed on how to record this commitment.
- o (Ballistic missile warhead counting and inspection) Both sides agreed at the Washington Summit to the number of warheads to be attributed to each existing type of ballistic missile. The Soviet Union agreed in Round X to allow a quota of on-site inspections (OSI) to verify that deployed missiles contain no more than the number of warheads declared at the Washington Summit or in the MOU. Specific inspection procedures and a potential allowance for changes in the number of warheads on existing types remained to be agreed.
- o (Mobile ICBMs) The United States would ban mobile ICBMs unless verification problems could be resolved, in which case we could consider allowing a limited number of such systems. The Soviet Union would permit mobile ICBMs within limits on launchers and warheads.

- o (ALCMs) The United States defined ALCMs as air-launched, nuclear-armed cruise missiles with a range in excess of 1,500 kilometers, and proposed that an agreed number of ALCMs be attributed to each heavy bomber equipped for ALCMs for the purpose of counting against the 6,000 warhead limit. The Soviet Union, by contrast, defined ALCMs as air-launched cruise missiles with a range in excess of 600 kilometers, and proposed that the number of ALCMs attributed to ALCM heavy bombers be the maximum number for which each type is equipped. Both sides have agreed to exempt future conventionally-armed ALCMs from START limits if those missiles are distinguishable from nuclear-armed ALCMs.
- o (SLCMs) The United States had agreed to work for a mutually acceptable solution to the question of limiting the deployment of long-range (SLCMs). (The sides had agreed that such limitations would not involve counting these SLCMs within the 6,000 warhead and 1,600 strategic offensive delivery systems limits.) Both sides had committed to establish ceilings on such missiles, and to seek mutually acceptable and effective methods of verification of such limitations, which could include use of National Technical Means (NTM), cooperative measures, and OSI. Thus far, however, the United States has not identified any effective verification approach for SLCMs. The Soviets, meanwhile, proposed specific force level limitations of 400 on nuclear-armed SLCMs and of 600 on conventionally armed SLCMs, but the Soviets had failed to identify effective verification measures. The Soviet approach would also undermine the US policy of neither confirming nor denying the

presence of nuclear weapons aboard US vessels -- an important underpinning of deterrence.

- o (Verification of compliance) The United States had proposed that verification provisions, at a minimum, include the following: exchange of data both before and after the reductions take place; OSI to verify data exchange and to observe elimination of weapons; continuous on-site monitoring of the perimeter and portals of critical production facilities; and short-notice inspection of sites where Treaty-limited systems are located both during and after the reduction period and sites at which a party considers that covert production, storage, repair or deployment may be occurring. The details of the US positions remained to be worked out. The Soviet position, meanwhile, was similar in principle to the United States position, although many of the details differed significantly. The Soviet provisions were not considered adequate for effective verification.

Further progress was made at the Moscow Summit, May 29-June 1. During the course of the Summit, the exchanges on START resulted in the achievement of additional common ground, particularly in the area of ALCMs. There were also attempts to develop and agree, if possible, on a solution to the problem of verification of mobile ICBMs. The details of this additional common ground were recorded in documents exchanged between the sides, with the idea of recording these gains in the Joint Draft Text of the START Treaty. The sides also discussed the question of limiting long-range, nuclear-armed SLCMs.

The elements of agreement also involved counting rules for bombers and distinguishability rules for bombers and ALCMs, as well as some collateral measures. But while progress was made in these areas, there was no agreement on the complete regime for heavy bombers and ALCMs. US experts gave the Soviet experts a list of elements remaining to be resolved. These included differences over inspection rights at heavy bomber bases, counting methodology for ALCMs toward the 6,000 aggregate, and whether to count or not to count certain bombers toward the 1,600 and 6,000 aggregates.

The United States explained that, while it continued to propose the banning of mobile ICBMs because of the verification difficulties they posed, it would also be prepared to consider whether or not a limited number of mobile ICBMs could be permitted if an effective verification regime could be agreed upon. At the Moscow Summit, the United States detailed some of its ideas about mobile ICBM verification; this resulted in agreement on conceptual approaches for dealing with road and rail mobile ICBMs.

On road-mobile ICBMs, for example, the missiles and their launchers normally would be confined to restricted areas specified in the MOU. A restricted area would be limited in size to an agreed area, and each restricted area would contain a limited number of missiles and launchers. On rail-mobile ICBMs, similarly, the missiles and their launchers normally would be confined to a limited number of rail garrisons, specified in the MOU. Each rail garrison would contain a limited number of missiles and launchers.

Mobile ICBM verification is a very complex subject, and a comprehensive approach requires provisions related to production, deployment, nondeployed missiles, and covert capabilities. While some progress on a verification regime for deployed missiles was made at Moscow, much remains to be done on this problem and other problem areas.

In his statement accompanying the opening of Round X of the Nuclear and Space Talks on July 12, President Reagan said that he was returning his negotiators to Geneva "prepared to engage in the discussion and hard bargaining necessary to make headway and to achieve an agreement that meets the criteria we have set, namely, deep reductions, greater strategic stability, and effective verification. Our goal is a good agreement in each area, not a quick one, and we will not take any shortcuts."

In October, the President made a number of verification-related decisions, including some on the approach we will take to so-called "suspect site inspections"; calculation of ballistic missile throw-weight; and mobile ICBM verification should mobile ICBMs be permitted under START. These decisions, presented to the Soviets in Geneva, represented part of the US effort to flesh out the details of our position, including the details of a START verification regime, so that there would be a complete and coherent US position on the table when the Geneva negotiations recessed.

Defense and Space

Soviet Union officials came to the Washington Summit in December of 1987 stating that they were not prepared to discuss strategic defenses. Instead, despite Soviet violation of the ABM Treaty, the Soviet side wanted only to discuss adherence to the Treaty. However, progress in

Defense and Space was made with the Soviets at the Washington Summit. Both sides agreed to instruct their delegations in Geneva to work out an agreement that would commit the sides to observe the ABM Treaty, as signed in 1972, while conducting their research, development, and testing as required, which are permitted by the ABM Treaty, and not to withdraw from the ABM Treaty, for a specified period of time. The sides also agreed that intensive discussions of strategic stability shall begin not later than three years before the end of the specified period, after which, if the sides have not agreed otherwise, each side will be free to decide its course of action. The sides also agreed that the separate agreement they would negotiate would have the same legal status as the Treaty on Strategic Offensive Arms, the ABM Treaty, and other similar, legally binding documents. In addition, the sides agreed to discuss ways to ensure predictability in the development of the US-Soviet strategic relationship under conditions of strategic stability to reduce the risk of nuclear war.

The Washington Summit clarified further the sides' Defense and Space positions and established the starting point for additional Geneva negotiations. Early in the ninth round of the NST negotiations, the President directed our negotiators to table a draft treaty in the Defense and Space forum of the negotiations. This was done on January 22, 1988. The US draft treaty called for a separate and new treaty that faithfully embodied and built upon the elements of agreement reached at the Washington Summit. It would help to provide a jointly managed, predictable, and stable basis for conducting the agreed research, development and testing of advanced defenses against strategic ballistic

missiles, and for the possibility of deployment of such defenses if they prove feasible.

A week earlier, the Soviets had tabled a draft Protocol to the START Treaty containing their version of Defense and Space provisions, which they claimed was consistent with the Joint Statement issued at the Washington Summit. However, it was the US view, clearly spelled out to the Soviet side at the Summit, that the Defense and Space agreement should be recorded in a new and separate agreement that is part of neither the START Treaty nor the ABM Treaty, nor any other agreement between the sides. Consequently, the Soviets knew in advance that we would not accept their approach.

The US and Soviet proposals could be expected to differ in a number of respects because some issues which were raised at the Summit were not resolved. The US concern, however, was that the Soviet proposal did not accurately reflect the key points that were agreed in Washington. The Soviet proposal was not only inconsistent with the guidance provided by President Reagan and General Secretary Gorbachev at the Summit, but attempted to plow old ground rather than resolve the substantive differences that remained. It retained an unacceptable linkage of reductions in strategic offensive arms to unacceptable limits on development and testing in the US SDI program, which the US side had consistently rejected during past negotiations at all levels. The Soviet efforts to limit SDI are of particular concern since the Soviet Government continues to press ahead with a strategic defense program of its own, and has been conducting research over a wide range of strategic defensive efforts for more than two decades.

The US proposal, on the other hand, looked ahead to the potential that new technologies could offer for effective defenses against a strategic ballistic missile attack and hence enhance strategic stability. As we explore these technologies, we want the Soviets to work with us cooperatively on a transition to a world in which defenses could play a greater role in enhancing the security of both sides. The US proposal would facilitate such a transition and make the evolving strategic regime more predictable for both sides.

Unfortunately, the Soviets inexplicably slowed down the pace in the Defense and Space talks by refusing for much of Round IX to engage in working group talks and by limiting the number of weekly meetings. The Soviets resisted any clarification of important ambiguities and differences, and despite the Washington Summit Joint Statement, have continued to refuse to work on a Joint Draft Text (JDT) of a Defense and Space Treaty.

To date, and despite discussions in the Moscow Summit and negotiations in Rounds IX and X of the Nuclear and Space Talks, no significant movement has been made to resolve the four areas of substantive disagreement with the Soviets in the Defense and Space Talks:

- o First, the United States believes that an agreement for reductions in strategic arsenals should stand on its own merits, and not to be linked to strategic arms reductions or to unacceptable limits on SDI research, development, and testing. The Soviets seek treaty textual material, unacceptable to the United States, which would permit them to suspend implementation of negotiated START reductions — and even begin increasing their strategic offensive

forces -- if the United States were to take actions to move toward deploying strategic defenses. Indeed, the Soviet Union continues to object even to certain types of strategic defense research.

- o Second, and closely related, we disagree with the Soviets about activities permitted during the nonwithdrawal period. Throughout the negotiations, the United States has consistently sought to preserve its full research, development, and testing rights presently existing under the ABM Treaty. The phrase "research, development, and testing as required, as permitted by the ABM Treaty" in the Washington Joint Summit Statement is consistent with the US position that the "broad interpretation" of the ABM Treaty is fully justified. Based on their official statements in Washington, Geneva, and Moscow, the Soviets have demonstrated they clearly understand how the United States interprets the language which the Soviets agreed to in the Washington Summit Joint Statement. Indeed, they had consistently rejected such language prior to the Washington Summit, precisely because it did mean the broad interpretation.
- o Third, the sides have not resolved the issue of what occurs at the end of the nonwithdrawal period. At the Summit, the President and General Secretary agreed that each side had the right to choose its own course of action, including the right to deploy strategic defenses after the nonwithdrawal period. The context of their Summit discussion makes clear this right would permit the sides to deploy defenses without further reference to the ABM Treaty after the nonwithdrawal period. However, the Soviets have subsequently

taken the position that the agreement embodying this right expires at the end of the nonwithdrawal period, i.e. at the very time it could be exercised.

- o Fourth, the Washington Summit Joint Statement instructed the negotiators to work toward an agreement that would commit the sides not to withdraw from the ABM Treaty for a specified period of time. The Soviets demand a blanket nonwithdrawal commitment, i.e., withdrawal would not be permitted for any reason. The United States side insists on the retention of certain internationally recognized withdrawal rights in the event that a side's supreme interests are jeopardized, and termination and suspension rights in the event the treaty is materially breached. Such supreme interest clauses have been a part of past arms control treaties between the United States and the Soviet Union and reflect normal diplomatic practice. The US position is that the nonwithdrawal commitment in the agreement means that neither side would withdraw to deploy or to acquire capabilities for strategic defenses.

In addition to the draft Defense and Space Treaty discussed above, the United States has also presented several other initiatives to the Soviet Union in the Defense and Space talks.

In the context of confidence-building measures to provide predictability for each side regarding the strategic defense programs of the other, the United States presented a Predictability Protocol on March 15, 1988, which calls for the following on a reciprocal and comparable basis: annual exchange of programmatic data on activities planned in the field of strategic ballistic missile defense, reciprocal briefings on

respective strategic ballistic missile defense efforts, reciprocal visits to associated research facilities, and reciprocal observation of strategic ballistic missile defense tests.

The Soviets have accepted in principle some of the US-proposed confidence-building measures, including exchange of data, meetings of experts, and observation of strategic ballistic missile defense tests. However, under a Soviet proposal presented on April 12, 1988, such measures would be focused exclusively on verification in order to ensure compliance with the ABM Treaty and the Defense and Space agreement being negotiated. Additionally, the Soviets propose an exchange of compliance information to clarify ambiguous situations, mandatory OSI of certain sites and facilities, and the wish to use the Standing Consultative Commission (SCC) at a future date to work out the details of these measures. The two sides are working on a joint draft text of a protocol on these matters.

With respect to activities that would be permitted during the ABM Treaty nonwithdrawal period, the United States proposed initiatives to help clarify the meaning of the Washington Summit Joint Statement phrase, "research, development, and testing as required, which are permitted by the ABM Treaty". In order to demonstrate that testing of space-based components capable of substituting for ABM interceptor missiles, which is permitted by the ABM Treaty, does not represent the deployment of such components, the United States is prepared to carry out such permitted testing only from designated ABM test satellites. The US view is that the number of designated ABM test satellites in orbit simultaneously shall not exceed a number well short of that associated with any realistic deployed

capability. The United States believes the number 15 falls well below that threshold. Notification associated with ABM tests in space would be provided for in the Predictability Protocol.

The United States also proposed that neither party shall object, on the basis of the ABM Treaty, to the development, testing, or deployment by the other party of any space-based sensors. Accordingly, each party would be able to develop, test, or deploy space-based sensors without restriction. The Soviets' initial reaction was negative, but they have expressed interest in continuing to discuss the issue.

Intermediate-Range Nuclear Forces Treaty

After six years of negotiations, President Reagan and General Secretary Gorbachev signed the INF Treaty in Washington December 8, 1987. President Reagan transmitted the INF Treaty to the US Senate January 25, 1988, for its advice and consent as to ratification.

Senate consideration of the INF Treaty was completed and the resolution on ratification was passed May 27, 1988. President Reagan exchanged instruments of ratification for the Treaty with General Secretary Gorbachev at the Moscow Summit June 1, 1988, when the Treaty entered into force.

During the remainder of 1988, implementation of the INF Treaty proceeded in accordance with the Treaty provisions, including the Protocol on Inspection and the Protocol on Elimination. Meanwhile, specific details related to implementation were being discussed and agreed between US and Soviet representatives to the Special Verification Commission (SVC).

Senate consideration of the INF Treaty lasted four months. During that time, three Senate committees -- the Senate Foreign Relations Committee, the Senate Armed Services Committee, and the Senate Select Committee on Intelligence -- held extensive hearings on the Treaty provisions. Administration witnesses who provided testimony included Secretary of State George Shultz, Chief NST Negotiator Ambassador Max Kampelman, Special Advisor to the President and Secretary of State for Arms Control Paul Nitze, INF negotiator Ambassador Maynard Glitman, ACDA Director William Burns, Secretary of Defense Frank Carlucci, and the Chairman of the Joint Chiefs of Staff Admiral William Crowe.

Members of the Senate requested formal written answers to over a thousand questions. Answers were prepared and made available by the Administration. In addition, the Senate had access to the confidential record of negotiations to facilitate its consideration. This record was made available by the Administration under arrangements to preserve its confidentiality.

During Senate consideration of the INF Treaty, questions arose about the application of the Treaty to future technologies. The Administration raised these questions with the Soviets and during the May ministerial meeting in Geneva, the two sides recorded their common understanding in an exchange of notes between Ambassador Kampelman and Soviet Ambassador Karpov, dated May 12, 1988. This document made it clear that the Treaty ban on intermediate-range and shorter-range missiles is to be applied to such "missiles flight-tested or deployed to carry weapons based on either current or future technologies." The common understanding further defines the Treaty term "weapon delivery vehicle" as meaning "any ground-launched

ballistic or cruise missile in the 500 to 5,500 kilometer range that has been flight-tested or deployed to carry or be used as a weapon — that is, any warhead, mechanism or device, which, when directed against any target, is designed to damage or destroy it." The one exception to this ban, reiterated in the common understanding, is on ground-launched ballistic missiles (GLBMs) mentioned in Article VII, paragraph 3 of the Treaty, which are "of a type developed and tested solely to intercept and counter objects not located on the surface of the earth." The common understanding also makes it clear that the Treaty does not cover "nonweapon delivery vehicles."

While the Senate was completing its consideration of the Treaty, the Administration began to plan for and discuss with the Soviets detailed arrangements for effective implementation of the Treaty. In the course of those discussions, certain concerns arose that the Administration shared with members of the Senate. The Administration pursued with the Soviet side a clarification of the issues of concern. These clarifications were also codified during the Geneva ministerial meetings in an "Agreed Minute" signed on May 12, 1988, by Ambassador Glitman and Col. Gen. N. Chervov of the Soviet General Staff.

This document included the following points:

- o specification of the smallest item subject to inspection for both the United States and the Soviet Union;
- o provisions related to the second stages of Pershing-II missiles;
- o restatement of the right to inspect the entire inspection site, and provisions for correcting site diagrams as required;

- o an understanding regarding what shipments would exit the Votkinsk continuous monitoring facility and what would be subject to inspection;
- o restatement of the right to use inspection equipment in accordance with Treaty provisions;
- o provisions for verifying the technical data in the MOU by weighing and measuring a sample of treaty-limited items;
- o procedures for confirming the contents of launch canisters immediately prior to elimination, including use of equipment and procedures to measure missile stages within the canisters;
- o certain corrigenda of data on dimensions of missile stages; and
- o the exchange of additional photographs.

In recommending that the Senate grant its advice and consent, the report of the Senate Foreign Relations Committee contained two major conditions that became binding through the passage of amendments to the resolution of ratification. One condition -- affecting the substance of the Treaty -- was that the May 12 documents containing the Common Understanding and the Agreed Minute on implementation issues be treated as having the same effect as the Treaty itself. The second condition, known as the "Biden Amendment", stated that Senate approval was accorded on the basis of the Administration's presentation of the meaning of the Treaty, and that any change in Treaty interpretation by this or a subsequent administration would require further action by the Senate.

In the resolution approving the Treaty, the Senate also attached declarations (non-binding conditions) concerning the US position on

certain types of weapons in START, conduct of future arms control negotiations, and human rights.

In early 1988, the United States and the Soviet Union began to establish inspection agencies and plan the details necessary to carry out the inspections called for under the Treaty. The US agency directed to carry out inspections and escort duties as called for in the INF Treaty was the newly-created On-Site Inspection Agency (OSIA). OSIA is administered under the Department of Defense, and its Director is selected by the Secretary of Defense. OSIA's deputies are appointed by the Arms Control and Disarmament Agency, the Department of State, and the Federal Bureau of Investigation, and OSIA's work is supervised by the policy community on an interagency basis.

The INF Treaty provides for an unprecedentedly detailed and stringent verification regime, including the use of several types of OSI (described in more detail below). After establishing the OSIA, the United States engaged the Soviets in technical discussions to reach agreement on the characteristics and methods of use of inspection equipment, as required by the Treaty, and to forestall practical difficulties that could arise in conducting inspections after Treaty entry into force.

It was known, for example, that the admission of teams of foreign inspectors and their equipment at points of entry, their movement to and from inspection sites within each country, their transport and housing during the periods of inspection, and their long residence and periodic rotation at continuous portal monitoring sites, would entail a host of unfamiliar logistical problems, and that detailed understandings would be needed to ensure these went smoothly.

Accordingly, representatives of the two inspection agencies met for technical talks in February, March, and May of 1988. In these talks, the representatives worked out a number of detailed implementation procedures so that inspections could begin promptly after the Treaty entered into force.

It was understood on the basis of these technical talks that the detailed procedures developed would have to be codified and further refined in the Special Verification Commission (SVC), taking into account experience from the inspection process itself. The SVC was established by the INF Treaty as one means of resolving compliance questions and for further improving verification of the Treaty.

After the Treaty entered into force on June 1, 1988, implementation proceeded at a brisk pace under deadlines specified in the Treaty. In accordance with Treaty provisions, the sides exchanged updated data for all of the categories of data listed in the MOU.

Baseline inspections began 30 days after entry into force, and lasted two months. They provided each side a means of confirming that the updated MOU data corresponded to the facts on the ground. The data to be confirmed are those supplied by each side regarding the numbers of its INF missiles, launchers, support structures and support equipment at all missile operating bases and missile support facilities (except missile production facilities), as well as certain technical characteristics. The United States conducted baseline inspections at 133 facilities in the Soviet Union and Eastern Europe. The Soviet Union conducted baseline inspections at 18 facilities in ten locations in the United States, and at

12 facilities in the basing countries. The facilities and their locations are listed in the June 1 Update of the INF Treaty MOU.

Closeout inspections began during the baseline period. Closeout inspections are carried out within the 60 days following the notified scheduled date of elimination of INF missile operating bases and missile support facilities (other than missile production facilities). Their purpose is to help verify that these facilities have been eliminated, i.e., that all INF activities at these locations have ceased and no INF systems remain there. As of August 30, the end of the baseline inspection period, the United States had confirmed that 23 Soviet facilities were eliminated; 15 were eliminated prior to Treaty entry into force (by virtue of their exclusion from the initial update of the MOU) and eight active facilities were eliminated after entry into force.

Elimination inspections have also been conducted according to the provisions of the Treaty, beginning an almost continuous process that will have lasted nearly three years before completion in mid-1991. Each party is obliged to conduct elimination inspections to confirm on-site that the process of elimination of treaty-limited items at an elimination facility has been completed. The Soviet Union has had inspection teams present at the Missile Elimination Facility at Longhorn, Texas, since September 8, when eliminations began, to observe the elimination of Pershing missile stages. Soviet teams have also been present at Davis-Monthan Air Force Base in Tucson, Arizona, to observe elimination of US ground-launched cruise missiles (GLCMs). Similarly, United States representatives have observed Soviet elimination of SS-20 missiles at Kansk, Chita, and

Kapustin Yar, and other treaty-limited items at Sarny, Lesnaya, Saryozek, Stankovo and Jolgava.

In addition, implementation of the Treaty's continuous monitoring provisions designed to ensure both sides of production cessation of SS-20s and Pershing IIs has begun both at the Missile Final Assembly Facility at Votkinsk in the Soviet Union and at Hercules Plant No. One at Magna, Utah, in the United States. Each side is permitted to have up to 30 inspection personnel present at the continuous monitoring sites to observe shipments leaving the plant, to use remote sensors to conduct certain measurements, and to use direct physical inspection and certain other methods to make measurements of cargoes that could contain treaty-limited items.

The SVC began its work shortly after the Treaty entered into force. The SVC is provided for in Article XIII of the Treaty, which states inter alia that the SVC exists to "promote the objectives and implementation of the provisions of this Treaty" and will meet to "agree upon such measures as may be necessary to improve the viability and effectiveness of this Treaty." The SVC is integral to ensuring that the implementation of the Treaty is conducted in a way that fully satisfies the purposes of the Treaty. It is to meet at the request of either party. ACDA provides the US component of the SVC with logistical, administrative, and technical support.

Following Treaty entry into force, the SVC was convened in Geneva and met from June 7 to July 15. The sides agreed on the text for, but did not sign, an MOU on the procedures for the SVC itself. In addition, work began on a Memorandum of Agreement (MOA) covering detailed implementation procedures under the Treaty. The MOA codifies the procedures worked out

in the technical talks between inspecting agencies, as well as other agreements reached in the SVC. Much of the text of the MOA had been agreed to by the end of the first session. It was also agreed then that inspectors could operate on the basis of the agreed parts of the MOA text, even though the document was not fully completed or signed.

The second meeting of the SVC took place between September 12 and October 28. Progress was made in that session both on the text of the MOA and on the draft of an Agreed Statement concerning inspection procedures at the Votkinsk Missile Assembly Plant. During the third session of the SVC, held November 28 - December 21, the Agreed Statement on Votkinsk was completed and signed. In addition, the US and Soviet SVC representatives signed the MOU on the operating procedures for the SVC. During the third session, as in the previous two, the US and Soviet SVC delegations made further progress toward completing the MOA on detailed procedures for the implementation of the INF Treaty.

Standing Consultative Commission (SCC)

The SCC was established in 1972, pursuant to Article XIII of the ABM Treaty. The SCC is charged with promoting the objectives and the implementation of the provisions of that Treaty, which was signed by the United States and the Soviet Union on May 26, 1972, and with the Accident Measures Agreement, which was signed by the United States and the Soviet Union September 30, 1971.

During 1988, the SCC met twice in Geneva to discuss ABM Treaty issues of concern to the two sides. The first regular session of 1988 (SCC-XXXV) was held from March 16 to April 28; the second (SCC-XXXVI) was held from November 30 to December 12. The items of concern to the United States

during SCC-XXXVI were Soviet violations of the ABM Treaty at Krasnoyarsk and Gomel. At its conclusion, the Soviet Government committed itself to destroy the radars deployed at Gomel, a constructive step which represents a success for the Administration's policy of firmness with regard to dealing with Soviet violations of the ABM Treaty.

However, the more crucial issue of the Krasnoyarsk radar remains; the lack of resolution of this matter continues to impede the conclusion of any future strategic arms agreements. It must be corrected in a way that meets US criteria.

ACDA provides the US Component of the SCC with logistical, administrative, and technical support and plays a leading role in interagency preparations for the SCC sessions through its chairing of the SCC Backstopping Committee. In addition, ACDA also provides at least one technically qualified representative as well as an attorney to the Component while it is involved with discussions with the Soviets in Geneva.

Nuclear Testing

The United States and the Soviet Union agreed in September 1987 to begin full-scale stage-by-stage Nuclear Testing Talks (NTT). The first objective of these negotiations is to reach agreement on effective verification measures which will make possible the ratification of the Threshold Test Ban Treaty (TTBT) of 1974 and the Peaceful Nuclear Explosions Treaty (PNET) of 1976. Following ratification of these two treaties, the United States will propose negotiations on ways to implement a step-by-step parallel program -- in association with a program to reduce and ultimately eliminate all nuclear weapons -- of limiting and ultimately ending nuclear testing.

During 1988, two marathon rounds of negotiations were completed, which moved the two sides closer to accomplishing the first objective of the negotiations. Having agreed in 1987 to conduct a Joint Verification Experiment (JVE), the United States and the Soviet Union devoted most of Round II (February 15-June 28) to negotiating a comprehensive JVE Agreement, including 37 Technical Annexes. This Agreement was signed at the Moscow Summit on May 31. The Agreement provided that each side would conduct a nuclear test at its site with the other side present; both sides would use their own verification instruments based on the hydrodynamic method to measure directly the yields of the tests. The JVE was successfully completed according to plan. The explosion at the Nevada Test Site took place on August 17; the explosion at the Semipalatinsk Test Site took place on September 14. The experiment demonstrated the nonintrusiveness, effectiveness, and accuracy of the hydrodynamic measurement method (CORRTEX) for verifying the TTBT and PNET.

Also in Round II, parallel negotiations began on new protocols to the TTBT and PNET to incorporate agreed verification provisions. Both the United States and the Soviet Union tabled draft protocols and, as a first priority, began work on a joint draft text for the PNET protocol.

Following a two-month break in order to conduct the JVE, Round III began on August 29 and continued until December 15. A text for the PNET protocol was completed ad referendum, and work began on the TTBT protocol. The next step will be the completion of the TTBT protocol text so that the TTBT and PNET protocols and the treaties themselves can be submitted to the Senate for advice and consent as to ratification.

ABM Treaty Review

During 1988, pursuant to the provisions of Article XIV of the ABM Treaty, the United States and the Soviet Union conducted a review of the Treaty after its third five-year period of operation. The Review took place in Geneva from August 24-August 31. The US Delegation was headed by ACDA Director William F. Burns; the Soviet Delegation was headed by Ambassador Victor Karpov. These periodic reviews, many of which in the past were handled by the SCC, provide each side an opportunity to discuss the overall working of the Treaty and any concerns related to it.

Throughout the Review, the United States emphasized the importance of Soviet violations of the ABM Treaty, especially the large, phased-array radar deployed near Krasnoyarsk in South-Central Siberia. The United States made clear to the Soviet side that the deployment of this radar constitutes a significant violation of a central element of the ABM Treaty, and that it should be dismantled without delay and without preconditions. Such radars take years to build and are a key to providing a nationwide ABM defense, which is prohibited by the Treaty.

The US representatives outlined during the Review the specific Soviet action, namely dismantlement, necessary to correct this violation in a verifiable manner. The United States also reaffirmed its position that, although negotiations will continue, the United States will not be able to conclude START and Defense and Space agreements with the Soviet Union until such a time as this violation is corrected. We made clear that if the Krasnoyarsk violation continues uncorrected, the United States will be forced to consider the exercise of its rights under international law to take appropriate and proportionate responses and that unless the

Krasnoyarsk radar is dismantled, it will continue to raise the issue of material breach.

The US representatives also discussed the Soviet violation of the ABM Treaty involving illegally deployed radars at Gornyi, making it clear that this violation also must be corrected verifiably. The US representatives also discussed with the Soviet representatives a number of ABM-related compliance concerns, the totality of which suggests that the Soviet Union may be preparing a prohibited ABM territorial defense.

In December 1988, at the SCC session, the Soviet Union finally agreed to take the actions necessary to dismantle the illegally declared radars at Gornyi and Moscow. Dismantlement was to be completed in early 1989. Assuming these actions are carried out by the Soviet side and verified by the United States, our concerns with regard to the illegal deployment of these radars would be satisfied.. We were, however, disappointed that the Soviet Union did not agree to correct its Krasnoyarsk violation without further delay and without preconditions. We made clear that we would not pay a price for a Soviet return to compliance with the ABM Treaty, since the Krasnoyarsk violation never should have occurred in the first place.

President Reagan directed that the Department of Defense, working with other executive branch agencies and the US Congress, take the lead in developing for his consideration a range of appropriate and proportionate responses to Krasnoyarsk.

During the Review, US representatives responded to all allegations of treaty violations raised by the Soviet Union. The United States believes that the Soviet Union's allegations are designed to deflect attention from

Soviet violations. The United States has been and remains in full compliance with its obligations under the ABM Treaty.

As President Reagan observed in December 1987: "No violation of a treaty can be considered to be a minor matter, nor can there be confidence in agreements if a country can pick and choose which provisions of an agreement it will comply with. Correcting their violations will be a true test of Soviet willingness to enter a more constructive relationship and broaden the basis for cooperation between our two countries on security matters."

US-Soviet Experts Meeting on Krasnoyarsk Radar

United States and Soviet experts met from October 31 to November 2 to discuss the problem of the Krasnoyarsk radar. The US team was led by ACDA Director William F. Burns and was composed of technical specialists.

The US representatives agreed to this meeting in response to a Soviet proposal to have a meeting of technical experts in order to listen to Soviet proposals and to clarify Soviet positions on actions they are prepared to take to correct the Krasnoyarsk problem. We welcomed their comments, made prior to the meeting, which indicated that they thought they could meet US concerns about the radars. Unfortunately, the Soviet experts did not have any new proposals, and could not answer US questions about how they would correct the Krasnoyarsk radar in a verifiable manner that meets US criteria.

The US representatives made clear to them that any satisfactory solution of the Krasnoyarsk violation must:

- o reestablish the lead time acceptable to the United States that was the purpose of the LPAR provisions of the ABM Treaty; and

o verifiably remove all Treaty-prohibited radar capability.

Our representatives reiterated that we continue to believe that US criteria can only be met by dismantlement of the radar and destruction of the transmitter and receiver buildings, including their foundations.

3 - MULTILATERAL ARMS CONTROL

The success of the bilateral US-Soviet INF Treaty and progress in the bilateral US-Soviet nuclear testing talks generated both high expectations and frustration in the field of multilateral arms control.

On one hand, most countries sensed a new momentum in arms control, which translated into greater attention to multilateral disarmament issues, in particular European conventional arms control efforts, and into calls, on the part of many, that the international community, both collectively and individually, assume a more active, participatory role in arms control. This sense of momentum was reflected in the United Nations General Assembly's Third Special Session Devoted to Disarmament (SSOD-III), which was held in New York in June. Attended by many heads of state and foreign ministers, with a total of 158 countries participating, the international community engaged in an intense effort to develop a consensus document describing the progress gained over the past decade and the priorities for the future in the field of arms control and international security. The beneficial result of this heightened awareness and activity was nearly universal recognition that the arms control challenges for the 1990s were global in scope and extended well beyond nuclear weapons to issues of conventional arms competition, confidence-building measures, and the proliferation of military capabilities in the conventional, nuclear and chemical fields.

On the other hand, success in bilateral US-Soviet arms control enterprises served to highlight the slow pace of multilateral efforts, leaving frustration in its wake. With the United States and the Soviet

Union having achieved progress in nuclear arms reductions, the Neutral/Non-aligned countries (NNA) were left uncertain and divided about how to proceed. While recognizing the global nature of the future challenges in arms control, some countries continue to resist accepting responsibility for dealing with these challenges, preferring instead to lay responsibility fully at the feet of the two major nuclear powers. Another cause of frustration was that, while the international community welcomed US-Soviet progress, they wanted to participate in that progress by having US-Soviet bilateral issues addressed in multilateral forums. The palpable result of this frustration was that some NNA states pressed their national agendas to extremes, thus preventing consensus at the SSOD-III, denying consensus solutions at the Conference on Disarmament which would permit multilateral work on nuclear testing, and challenging two of the most successful and respected multilateral agreements, i.e., the Nuclear Non-Proliferation Treaty and the Limited Test Ban Treaty.

Despite this undercurrent in the international community, progress continued during the year in conventional arms control in Europe and in the negotiations on a chemical weapons ban at the Conference on Disarmament in Geneva. Nevertheless, conventional arms competition and proliferation in nuclear and chemical capabilities and in missile delivery systems impart to multilateral arms control both an urgency and a responsibility which all states must shoulder.

Conventional Arms Control Negotiations

Conference on Security and Cooperation in Europe (CSCE/CDE)

The Review Meeting of the CSCE, involving 35 participating states (all European states except Albania, plus the United States and Canada),

continued in session in Vienna throughout most of 1988, anticipating the conclusion of the Conference on January 14, 1989. The work of the Review Conference entailed assessment of implementation of commitments undertaken in the 1975 Helsinki Final Act and the 1983 Madrid Concluding Document in the areas of security, economic cooperation and human rights. The Review Conference also assessed the results of the Document on Confidence- and Security-Building Measures (CSBMs) adopted at the Stockholm CDE in 1986. In the security area, the 35 states worked on a mandate to continue the work on CSBMs begun in Stockholm. These resumed negotiations most likely will begin in early 1989. As stated in the December 8 NATO Ministerial statement on Conventional Arms Control, NATO objectives in these negotiations will be to seek greater openness regarding military activities and force structures. NATO will also seek to improve military-to-military contacts and will propose an exchange of views on military doctrine.

Stockholm CDE

The Stockholm Document was adopted by the 35 states participating in the CSCE in September 1986. The Document identifies a set of CSBMs designed to reduce the risk of military confrontation and to increase openness about and predictability of military activities in Europe.

The second year of implementation of the detailed provisions of the Document has been encouraging. The technical difficulties, experienced by all participating states in the initial period of implementation, have progressively diminished, though some questions of interpretation remain. For example, nearly all exchanges of calendars and notifications, to

include exchanges relating to the conduct of on-site inspection (OSI), have been complete and timely.

In 1988, 38 military activities were notified by the participating states. Observers attended 18 of these activities. Nine NATO states notified a total of 14 different military activities, including two amphibious landings. Six Warsaw Pact states notified a total of 21 different military activities, including one Soviet airborne assault activity. Of the NNA states, Switzerland notified and held observation programs for two military activities while Finland notified and voluntarily invited observers to attend one notifiable activity.

While Eastern states initially met only the minimum requirements of the observation provisions of the Document, there has been improvement in this area during the past year. More important, however, is the continued implementation of the Document's provisions for OSI without right of refusal. There have been 18 CDE inspections since the Document went into effect on January 1, 1987. Thirteen inspections were conducted during 1988 by NATO and Warsaw Pact states. Eight participating states (four NATO and four Warsaw Pact) have taken part in this area of implementation. The United States Government believes that OSI is an important aspect of this agreement and welcomes the fact that other participating states have exercised their rights to conduct inspections under the Stockholm Document.

Conventional Stability Talks (CST)

[Ed. Note: The CST became known as the Conventional Forces in Europe (CFE) negotiations in January 1989.]

In parallel with the CSCE discussions, the 23 members of NATO and the Warsaw Pact continued work in Vienna on a mandate for future talks on conventional forces scheduled to begin in early 1989. The objectives of these negotiations will be:

- o to strengthen stability and security in Europe through the establishment of a stable and secure balance of conventional armed forces, which included conventional armaments and equipment, at lower levels;
- o to eliminate disparities prejudicial to stability and security; and
- o to eliminate, as a matter of priority, the capability for launching surprise attack and for initiating large-scale offensive action.

The mandate for these talks call for participants to achieve these objectives by the application of militarily significant measures, such as reductions, limitations, redeployment provisions, equal ceilings, and related measures. The negotiations will not address naval forces, chemical weapons, or nuclear weapons systems.

The major threat to stability in Europe in the conventional field is the Soviet Union's forward-deployed, tank-heavy forces which, in terms of their deployment, structure, equipment, and training, reflect an offensive war-fighting strategy. In Eastern Europe, these forces are organized into 30 divisions replete with the most modern tanks, artillery, armored fighting vehicles, and backed up by large numbers of similar divisions in the USSR, all of them west of the Ural Mountains. (Soviet divisions are about half the size of US divisions insofar as manpower is concerned.) In the NATO view, a Western priority in conventional arms negotiations must

be to eliminate the disparities in capability represented by these forward-deployed forces and those with similar armaments stationed in the Soviet Union.

Soviet President Gorbachev announced at the United Nations December 7 a proposed unilateral reduction of troops and equipment. If implemented, this would be a step toward correcting the conventional force imbalance in Europe. However, even after these reductions, the Warsaw Pact's great superiority in military forces will remain.

On November 25, 1988, NATO released a force comparison paper which highlights Warsaw Pact superiority in equipment capable of seizing and holding territory, such as tanks, artillery, and armored fighting vehicles and refutes Pact claims that NATO has a numerical superiority in aircraft. The paper challenges the East to be more open in the details of Warsaw Pact forces since more comprehensive information exchanges will be required to monitor reductions and verify residual levels of forces.

On December 8, NATO Ministers issued a statement on conventional arms control, describing NATO objectives in both the conventional force and confidence-building measures negotiations and outlining NATO proposals for each. For the conventional force negotiations, NATO will propose overall limits on the total inventories of tanks, artillery and armored troop carriers in Europe. For tanks, NATO will propose an overall limit of about 40,000 in the Atlantic-to-the Urals Zone, a reduction of about one-half of existing tank totals. In addition, no one country in Europe would be permitted more than 12,000 tanks. NATO will also propose limits on the stationing of these forces in Europe outside national borders. Finally, NATO will propose stabilizing measures, which could include

measures of transparency, notifications and constraint applied to the deployment, movement and levels of readiness of conventional armed forces.

Extensive verification measures will also be required for the West to have full confidence in compliance with a prospective conventional force agreement. In armored vehicles alone, conventional force negotiations will be required to address scores of different types of systems which number in the thousands and tens of thousands in each alliance. The large number of systems, the diverse types, the mobility of systems and the geographic boundaries pertinent to conventional forces will pose great challenges for effective verification.

Mutual and Balanced Force Reductions (MBFR)

The MBFR talks involving 12 NATO states and seven members of the Warsaw Pact continued at a low level of activity during 1988. The MBFR forum will be terminated at the beginning of the CST mandate negotiations.

Conference on Disarmament

Widely regarded as the principal forum for the negotiation of multilateral arms control agreements, the Conference on Disarmament (CD) has been in existence in its current format since 1979. A total of 40 states, including all five nuclear weapons states, participate. The CD meets in Geneva in an annual session usually lasting from February through August, with a break during the months of May and June, which divides the session into spring and summer rounds. Intersessional meetings on specific subjects may also be conducted.

The spring session opened on February 2 and ended April 29, with the adoption of a special report to the Third Special Session of the United Nations General Assembly on Disarmament (SSOD-III). The summer session

opened on July 7 and ended on September 20 with adoption of the CD's report to the 43rd UNGA. Ad hoc committees were established during 1988 on the following items:

- o Chemical Weapons;
- o Prevention of An Arms Race in Outer Space;
- o Effective International Arrangements to Assure The Nonnuclear States Against The Use or Threat of Use of Nuclear Weapons;
- o Radiological Weapons;
- o Comprehensive Program of Disarmament.

No ad hoc committees were formed for the other items on the agenda since there was no consensus on possible mandates dealing with those subjects. These were:

- o Cessation of The Nuclear Arms Race and Nuclear Disarmament
- o Prevention of Nuclear War;
- o Nuclear Test Ban

The 1988 sessions were overshadowed by the accomplishments of the US-Soviet bilateral process. In the spring, the session followed on the US-Soviet Washington Summit of 1987, with its signing of the INF Treaty, its promise of progress in START, and agreement on Nuclear Risk Reduction Centers; in the summer, the session followed on the Moscow Summit, the entry into force of the INF Treaty, the agreements in the nuclear testing field, and the signing of the agreement on joint notification of missile launches. Moreover, the 1988 session was overwhelmed with report writing, given the request to report to the SSOD-III, leaving little time for substantive work in the committees. The atmosphere of the 1988 CD, therefore, was one of subdued frustration, with many members expressing

satisfaction with the bilateral progress but frustrated that it had not been duplicated in the multilateral arena.

Chemical Weapons

During 1988, chemical weapons and chemical weapons arms control assumed an increasingly prominent place on the international agenda. Part of the reason for this was dawning realization that repeated use of chemical weapons in armed conflict -- previously in Southeast Asia and Afghanistan, most recently and repeatedly in the Iran-Iraq war -- threatened to erode respect for the international norms against the illegal use of chemical weapons. Moreover, it had become evident that an increasing number of states have or are seeking to acquire a chemical warfare capability. Libya, for example, has now established a chemical weapons production capability and is on the verge of full-scale production of these weapons.

The United States has determined that urgent action is required to draw worldwide attention to the problem and to take measures to restore respect for the 1925 Geneva Protocol and other international norms outlawing the illegal use of chemical weapons. In his September 26 address to the United Nations General Assembly, President Reagan called for an international conference to reaffirm commitment to the Geneva Protocol. France, as Depositary Government for the Geneva Protocol, has offered to host this conference in Paris, January 7-11, 1989.

Nevertheless, a comprehensive, effectively verifiable, and truly global ban on the production and stockpiling of chemical weapons remains the best solution, and negotiators at the Geneva Conference on Disarmament continued in 1988 to work intensely toward that goal. The negotiations

concentrated on key areas of verification, with the elaboration of the guidelines for challenge inspection receiving special attention. The negotiations also focused on provisions for ensuring the nonproduction of chemical agents by the civil chemical industry, and on the regime dealing with the permitted synthesis of minute quantities of banned chemicals for research or medical purposes.

To aid in the development of an inspection regime for monitoring the commercial chemical industry under a CW ban, several CD countries agreed to participate in trial inspections. By agreement, the first step is for states to conduct national trial inspections in their own chemical industry, the results of which will be reported to the CD to aid in the development of a single set of procedures for use in subsequent multinational trial inspections. The United States Government will conduct a trial inspection of the US chemical industry in early 1989.

The United States and the Soviet Union initiated CD discussions in an important new area by jointly introducing a paper defining chemical weapons production facilities and addressing their destruction. In July, the United States delegation publicly identified those past and present US production facilities that would be destroyed under a CW convention, and encouraged other states to provide similar information.

The CD negotiations continued to address other major outstanding issues, such as:

- o procedures to ensure the security of all parties during the period of stockpile destruction. There is growing sense under an agreement that stockpiles should be destroyed proportionately during the 10-year period, and that the United States and the

- Soviet Union should destroy down to equal stockpile levels by the eighth year before proceeding with full destruction;
- o the structure and function of the body that will implement the convention;
 - o the nature and extent of assistance that might be provided nations which have been attacked with chemical weapons or which are threatened with such attack; and
 - o the relationship of the CW convention to economic and technological cooperation in the civilian chemical field.

Another important issue discussed is how to ensure that all chemical weapons-capable states become parties to the CW convention, a requirement with which the Soviet Union and others agree. The United States hopes that the Paris Conference in January will provide an incentive to all states to become more informed about, and supportive of, the Geneva negotiations on a CW ban.

In the meantime, until such time as the CW threat is eliminated through an effectively verifiable and truly global ban, the United States must, for its own security, continue to insist upon maintaining a credible, modernized chemical weapons deterrent capability through its binary CW weapons modernization program.

Group of Scientific Experts

The Conference's ad hoc Group of Scientific Experts to Consider International Cooperative Measures to Detect and Identify Seismic Events (GSE) met twice in 1988. At its March meeting, with 18 countries attending, considerable progress was made in working out technical details needed for a conceptual design of a modern international seismic data

exchange system. Specifications were elaborated for a standardized prototype seismic station. In parallel with the work on the conceptual design of a modern global network, a large-scale experiment was planned. The Group has adopted a stage-by-stage approach for design and testing of the system and its components, given the inherent limit of resources in various countries. The earliest expected date for performing the experiment is 1990. At its summer meeting, with 24 countries attending, the Group continued its design of a modern system for seismic data exchange and its planning for a global experiment. The start-up phase of that experiment was announced with the commencement of small national or bilateral experiments beginning immediately.

United Nations

The United States recognizes that the General Assembly and the Disarmament Commission -- and this year, the Special Session on Disarmament -- are the only forums available for many countries to participate and express themselves on arms control and security issues of the day. For this reason, the United States supports these forums and the exchanges of view made possible. At the same time, the United States is realistic about the difficulty in marshalling the international consensus on most of these issues which would permit positive action to be taken. The three major United Nations meetings in 1988 clearly demonstrated this difficulty. As the United States and Soviet Union progress in their quest for substantial reductions of nuclear weapons, attention must necessarily turn to the other pressing issues of international arms control and security: proliferation of ballistic missiles, chemical weapons, nuclear capabilities, and conventional arms competition. Although the NNA

countries can often present a united stance on issues of nuclear disarmament, directed against the major nuclear powers, that unity is much more difficult to achieve when their own national interests are at stake. In international debates, the United States takes a principled approach, supporting those efforts which are consistent with US national policy and which seriously contribute to international dialogue, stability and security.

UN Disarmament Commission

The United Nations Disarmament Commission (UNDC), a subsidiary body of the General Assembly designated to deliberate on arms control and security issues, is composed of all UN member states and meets annually in New York each May. The intent is to adopt a consensus report on each agenda item, although in years past - as in 1988 - several items failed to achieve consensus. The 1988 session of the Commission was held May 2 through May 20 under the chairmanship of The Bahamas. The agenda included seven items carried over from 1987 (nuclear/conventional disarmament, reduction of military budgets, South Africa's nuclear capability, review of the UN role in disarmament, naval arms and disarmament, conventional disarmament, and verification in all its aspects).

A positive development was that the verification working group succeeded in producing a substantive consensus report which added six principles of verification to the 13 previously agreed and, in effect, endorsed the US position that verification is of critical importance for arms control. The Confidence-Building Measures working group also succeeded in producing a report incorporating guidelines for CBMs. A disappointment was the failure of the conventional working group to

produce a report; many of the countries in the NNA group objected to the need for conventional arms control in regions other than Europe. Overall, the UNDC session demonstrated the difficulties in achieving consensus in the international community; the approach of most of the NNA states continues to be to keep the focus exclusively on superpower disarmament and to insist on direct participation in that process, while giving only lip service to conventional and regional disarmament issues which concern them directly.

Third Special Session on Disarmament (SSOD-III)

The United Nations General Assembly's SSOD-III was held from May 31 to June 26. (The First Special Session was held in 1978, the Second in 1982). The world-wide esteem accorded the SSOD-III may be measured by the fact that almost 60 heads of state, presidents, prime ministers and foreign ministers addressed the General Assembly. Secretary Shultz addressed the SSOD-III on June 13, emphasizing the arms control challenges posed by the proliferation of the technologies of destruction (chemical weapons, ballistic missiles, nuclear weapons).

Despite intense and well-intentioned debate, efforts to reach consensus agreement on a substantive concluding document ultimately foundered on irreconcilable differences, both between the West and the NNA countries, and among the NNA themselves. Nevertheless, from the point of view of the United States, the lack of a concluding document should not be considered a failure. There was a substantive exchange of views among more than 158 countries and a greater sense of realism was demonstrated throughout the debate than in previous Special Sessions.

The general thrust of plenary sessions, dominated by the Third World,

predictably was critical of US policy, though most noted the significance of the INF Treaty. There was, however, growing recognition that conventional disarmament merits increased attention. Two predominant themes that pervaded almost all speeches in the plenary sessions were the advocacy of a multilateral role in the disarmament process and the link between disarmament and development.

UN General Assembly

The United Nations General Assembly began its 43rd session on September 26. President Reagan addressed the General Assembly on opening day and called on the Parties to the Geneva Protocol of 1925 and all other concerned countries to convene a conference to take action against the illegal use of chemical weapons in armed conflict. In the weeks that followed, there has been a broad and favorable response to this initiative from every corner of the globe. The French agreed to host the conference in Paris from January 7 to 11, 1989.

The First Committee of the General Assembly, which is responsible for arms control and security matters, held its meetings from October 17 to November 30. ACDA Director Burns addressed the First Committee on October 18, highlighting accomplishments made during the recent past in both bilateral and multilateral arms control.

Over 70 resolutions were introduced in the First Committee. The US delegation introduced its resolution on compliance with arms control agreements. Similar to the one adopted by consensus in the last two years, its adoption once again by consensus demonstrates the importance the international community now ascribes to compliance. Another important resolution, also adopted by consensus, called for reaffirming

international norms against illegal use of chemical weapons and endorsed President Reagan's initiative for an international conference on CW use. Finally, another resolution on CW use, sponsored by the United States and adopted by consensus, underscored the increasing awareness and concern on the part of the international community about this problem.

4 - VERIFICATION AND COMPLIANCE

Verification is the technical, analytical, legal, and political process by which the United States evaluates compliance with existing arms control agreements and obligations. The verification of arms control agreements has three distinct purposes:

First, verification serves to detect violations of an agreement (or to provide evidence that violations may have occurred), and hence to furnish, as far as is possible, timely warning of emerging threats to a nation's security arising from a violation of a treaty.

Second, by increasing the risk of detection and complicating any scheme of evasion, verification helps to deter violations of an agreement. The deterrent value of verification depends to a considerable extent on a potential violator's uncertainty as to the exact capability of the techniques used by the other party to monitor his compliance with an agreement -- a fact which highlights the importance of the secrecy regarding many of these techniques. This deterrent function presupposes knowledge that detection of a violation will involve some concrete response to the illicit activity.

Third, verification serves to build domestic and international confidence in the viability of an arms control agreement. At the same time, it provides an important safeguard against wishful illusions and possible manipulation of an atmosphere of trust in the pursuit of unilateral advantage.

Effective Verification

An important process relating to verification is the evaluation of the

degree to which a prospective arms control proposal or provision is verifiable.

The process of determining whether a prospective agreement is effectively verifiable has two phases. The first phase is a technical and analytic process which weighs the present and programmed US collection, processing, analysis and reporting capabilities against the activities proposed to be limited. This analysis must take into account credible cheating scenarios and the high standard of evidence necessary within the US Government in order to reach a decision that noncompliance has occurred. This phase provides an assessment of the "degree of verifiability," or the degree to which compliance with an agreement can be verified by identifying those "undetectable" evasion scenarios that could occur.

When the first phase is complete and the treaty-specific limitations of our technical verification capabilities have been identified, the second phase addresses whether verification is effective. This assessment takes into account the results of the first phase and considers other factors including:

- o the costs and risks of evasion;
- o the degree to which undetectable violations would pose a risk to US national security;
- o the past compliance record of the treaty partner;
- o the specific incentives that a party might have to violate an agreement;
- o the ease and speed with which it would be possible for the United States to deny the benefits derived from noncompliance;

- o the likely perceptions of the other party regarding US ability and willingness to nullify any advantages derived from noncompliance;
- o the impact on the arms control environment and bilateral relations in general of potentially unresolvable compliance concerns caused by limitations in technical verification capabilities; and
- o domestic political factors.

Arms control agreements that are not effectively verifiable can, for a variety of political and military reasons, be more detrimental than beneficial to US national security. Undetected violations could pose a severe threat to US national security. For example, the covert stockpiling or deployment of ICBMs in numbers exceeding the ICBM inventory permitted by an arms control agreement would be a serious threat because the concealed missiles could serve as a secure reserve force to be used after an initial nuclear attack, or for the purpose of nuclear blackmail during an international crisis. Furthermore, suspicions of violation or evasion based on ambiguous evidence give rise to a situation in which the complying party cannot act to counter the activity even though it may pose a possible military threat. Effective verification is therefore an essential precondition for a viable arms control agreement.

Special Challenges for Verification

Verification has been a key topic of conversation in meetings between Secretary of State Shultz and Soviet Foreign Minister Shevardnadze. The US side laid out in some detail its view on the central role of verification in the arms control process and the need to negotiate concurrently measures that would provide for effective verification. In START, for example, verification ideas that were put forward call for a

comprehensive exchange of data, on-site observation of reductions down to agreed levels, and an effective monitoring of remaining inventories and associated facilities, including on-site inspection (OSI) to supplement NTM capabilities. These concepts have been applied in the Intermediate-Range Nuclear Forces (INF) Treaty as well.

While verification has always been a difficult process, numerous factors make the verification of future agreements even more complicated and crucial. The most important of these factors are: (1) the impact of the Soviet Union's record of noncompliance; (2) the scope of future agreements in which strategic and space systems must be considered; (3) the aim of future agreements to reduce or eliminate forces, making the risks to a complying party greater should the other side choose to violate; and (4) advances in technology that lead to smaller, more mobile and more easily hidden weapon systems that are difficult to detect.

Specific Verification Programs

INF Treaty Verification

The INF Treaty verification regime is the most detailed and stringent in the history of nuclear arms control. It is designed both to control declared INF inventories (and to eliminate them entirely in three years) and to make as complicated and costly as possible the retention or acquisition of any illegal covert inventory.

The declared inventory is controlled during the three-year draw-down period by specific geographical and movement constraints and is confirmed by OSI. The geographical constraints are based on partitioning the territories of the parties and the basing countries into those locations where Treaty-limited items are permitted -- deployment areas and missile

support facilities -- and a much larger residual area where they are prohibited unless in notified transit. Any covert inventory resulting from under-declaration of systems produced prior to entry into force or illegal production after entry into force is countered by the flight test and production bans, as well as NTM search for illegal systems.

A comprehensive data exchange, consisting of the numbers and locations of all Treaty-limited items, as well as their technical characteristics, is embodied in the Memorandum of Understanding (MOU) and took place at the time the Treaty was signed. All categories of data in the MOU were subsequently updated within 30 days after entry into force, and will continue to be updated at six-month intervals for the duration of the Treaty.

To confirm the declared inventory of INF systems throughout the three-year elimination period and for ten years thereafter, the INF Treaty provides for a variety of OSI, including baseline inspections to confirm the initial data update, closeout inspections of facilities and missile operating bases at which INF activity has ceased, short-notice (quota) inspections of declared and formerly declared facilities, and elimination inspections to confirm that INF systems have been eliminated in accordance with agreed procedures. In addition, the United States has the right to monitor, on a continuous basis for up to 13 years, the access (or portals) to any Soviet facility manufacturing a ground-launched ballistic missile (GLBM), not subject to the INF Treaty, which has a stage outwardly similar to a stage of a GLBM limited by the Treaty. The Soviets have a similar right to monitor the US facility that previously produced the Pershing rocket motor. Finally, the Treaty also establishes the Special

Verification Commission (SVC) as one means to resolve questions related to Treaty compliance and to agree upon additional measures to improve the viability and effectiveness of the Treaty.

The INF Treaty is achieving its goals of eliminating an entire class of weapons under these stringent verification conditions. As of December 1, 1988, the Soviets have moved their entire deployed force of shorter-range missiles and launchers into elimination facilities where their elimination is well under way. They have also eliminated more than 80 SS-20 missiles and 70 SS-20 launchers in the presence of US inspectors. During the baseline inspection period from July 1 through August 30, US inspectors conducted 133 baseline inspections at facilities in the Soviet Union, the German Democratic Republic, and Czechoslovakia. Soviet inspectors conducted a total of 30 baseline inspections at facilities in the United States and the five basing countries (Belgium, the Federal Republic of Germany, Italy, the Netherlands, and the United Kingdom).

Nuclear Testing Verification

The uncertainty in finding a likely violation of a treaty designed to limit the yield of a nuclear test arises from the difficulties inherent in determining the yield of an underground nuclear explosion using only teleseismic methods. Many analysts believe that no method of yield estimation based on information derived solely from seismic measurements or seismic theory can reduce the uncertainty to an acceptable level. Uncertainties that have been raised by analysis of Soviet tests cannot be answered definitively, and uncertainties in the yield estimation process cannot be sufficiently reduced without directly measuring the yield of

Soviet tests with instruments which are inherently much more accurate than seismic methods.

The United States has identified in the Continuous Reflectrometry for Radius versus Time Experiment (CORRTEX) a measurement technique which will reduce the uncertainty in yield measurement to an acceptable level and can do so without danger of compromising other sensitive information about the nature or performance of the nuclear device whose yield is to be measured. CORRTEX is a hydrodynamic yield measurement technique that measures the rate of propagation of the underground shock wave from an explosion.

In August and September 1988, the United States and the Soviet Union participated in the Joint Verification Experiment (JVE) for the purpose of measuring the yields of each other's nuclear tests preparatory to negotiating protocols for the Threshold Test Ban Treaty (TTBT) and the Peaceful Nuclear Explosion Treaty (PNET). The United States used the CORRTEX method while the Soviet Union relied on their hydrodynamic method which measured the same phenomena. Seismic results were also compared for the two explosions.

Mobile Strategic Ballistic Missile Systems

The Soviet Union has underway programs for at least two new mobile ICBM systems. One, the SS-24, is intended to be deployed in a rail-mobile as well as fixed silo mode. The other, the SS-25 system, is in the process of being deployed as a road-mobile system. While mobile missiles are attractive from the standpoint of increasing survivability, and hence crisis stability, Soviet mobile ICBMs pose special challenges to verification.

New Soviet mobile land-based systems, because of their mobility, the concealment measures associated with their deployment, and the potential commonality of systems and support facilities with other military and civilian equipment and installations, pose serious verification difficulties. The United States proposes to ban mobile ICBMs unless agreement can be reached on an effective verification regime that meets special challenges associated with these systems.

Antarctic Treaty Inspection Regime

Article VII of the Antarctic Treaty entitles the Antarctic Treaty Consultative Parties to exercise the right of inspection throughout the Antarctic Treaty area in order to promote the objectives and ensure the observance of the Treaty's provisions. Consultative Parties have the right to designate observers, who are accorded complete freedom of access at any time to any and all areas of Antarctica, including access to all stations, installations and equipment. The United States has conducted inspections of foreign stations on eight previous occasions (approximately every three years since the Treaty came into effect in 1959 and the first inspection in 1963-64). None of our previous inspections has uncovered any violation of the terms of the Treaty.

The US Government intends to conduct an inspection during the austral summer of 1988-89. Our inspection team will be in Antarctica in February 1989. It is possible that the Soviet Union will also conduct an inspection during the 1988-89 austral summer.

Soviet Noncompliance

The US Government has determined that the Soviet Union has violated one or more provisions of many of the bilateral and multilateral arms

control agreements to which the United States and the Soviet Union are parties. These violations have been documented in all of the seven classified and unclassified versions of Congressionally-mandated Presidential Reports on Soviet Noncompliance, which have been forwarded to the Congress in January 1984, February 1985, December 1985, December 1986, March 1987, December 1987, and December 1988.

The reports included a thorough analysis of the Soviet Union's obligations under existing arms control agreements based upon the specific terms of these agreements and, where necessary, on the negotiating record. The US Government used the best information and analytical resources available in addressing compliance questions, and employed a high standard of evidence to determine whether or not the Soviet Union was in compliance. Careful consideration was given to possible uncertainties and ambiguities inherent in some of the evidence or analytical methods, and where these existed, no violation was charged or findings were qualified by terms such as "likely" or "probable."

Since much of the data gathered by national technical means of verification is sensitive and confidential, information that led to the conclusions cannot be fully disclosed on an unclassified basis. The compliance findings are, however, as comprehensive as possible within these sensitivity constraints.

After extensive study, the US Government found that the Soviet Union has violated one or more provisions of the 1972 Antiballistic Missile (ABM) Treaty, the SALT I Interim Agreement, the SALT II Treaty, the 1925 Geneva Protocol as reflected in the rules of customary international law, the 1972 Biological and Toxin Weapons Convention (BWC), the 1963 Limited

Test Ban Treaty (LTBT), and the 1975 Helsinki Final Act. In addition, the US Government concluded that it is likely that the USSR has violated the 150 kiloton threshold limit of the TTBT.

The December 1988 Report, similar to previous reports, addresses questions of Soviet noncompliance with existing arms control agreements, including the ABM Treaty, the BWC, the Geneva Protocol on Chemical Weapons, the TTBT, and the LTBT. The provisions of the Conference on Security and Cooperation in Europe (CSCE) documents that relate to military security- and confidence-building are also treated in this Report. This Report briefly updates the previous assessments of Soviet actions with respect to the ABM Treaty, TTBT, LTBT, and BWC. It also provides a summary of Soviet implementation of the INF Treaty.

The compliance concerns updated in this Report are not unfamiliar to the Soviet Union. President Reagan expressed his personal interest in these issues directly to General Secretary Gorbachev during his meetings with him: Geneva (1985), Reykjavik (1986), Washington (1987), and Moscow (1988). In addition, the United States and Soviet Union have discussed those compliance concerns in detail in the Standing Consultative Commission. The United States also raised its concerns with regard to the ABM Treaty during the five-year review of that Treaty in Geneva in August 1988. As he has done in previous meetings, Secretary of State Shultz raised US concerns about Soviet noncompliance during his September 22-23, 1988, meeting in Washington with Soviet Foreign Minister Shevardnadze. Most recently, the Krasnoyarsk radar issue was also discussed at an Experts Meeting in Geneva, October 31 - November 2, 1988. Concerns with regard to implementation of the INF Treaty are being discussed with the

Soviet Union in the SVC and through other diplomatic channels. In doing so, the United States has made it clear that it expects the Soviet Union to take positive steps to correct its noncompliance and to resolve the other compliance concerns. The Soviet Union has neither provided satisfactory explanations nor undertaken corrective action sufficient to resolve our concerns.

The INF Treaty is meeting our goal of complete elimination of an entire class of US and Soviet missiles under conditions of strict verification. Instances of Soviet noncompliance with the INF Treaty, which we have raised with the Soviets, have been resolved to our satisfaction or are in the process of resolution.

The issues that have arisen for which the United States has made noncompliance findings include the following:

- o Since entry into force, the Soviets have conducted nearly 200 noncompliant transits of SS-20s on their launchers between missile operating bases (MOBs), missile/launcher repair facilities (MLRFs), and elimination facilities. (The Treaty requires that launchers and their missiles must be separated while in transit.) Although the Soviets have raised the matter in the SVC and have notified the United States of such transits via the Nuclear Risk Reduction Center, in accordance with the Treaty, it is clear that such transits constitute a violation of paragraph 8 of Article VIII of the Treaty.
- o After repeated discussion in the SVC and in diplomatic channels, the Soviets have agreed to discontinue the practice of moving SS-20s on launchers to MLRFs. The United States has begun to

receive notifications of transits of SS-20s on missile transporter vehicles consistent with the provisions of the Treaty.

- o Immediately after the INF Treaty's entry into force, the Soviets were not in compliance with Article IX requirements to list Treaty Limited Items (TLIs) and their locations in the data update to the MOU. This summer, the United States presented a demarche to the Soviet Union through diplomatic channels on the related issue of TLI at non-declared locations and insisted on full Soviet compliance. While the Soviets never acknowledged their failure to meet the locational restrictions or explained the reasons for this failure, they have moved to correct their noncompliance and have dismantled or removed TLI previously observed at non-declared sites.
- o In addition, noncompliant activities occurred with regard to: 1) unnotified movements of training launchers; 2) TLI at a facility declared ready for elimination; removal of SRMs from an elimination facility; and 3) TLI at non-declared locations.

A compliance-related question that also arose, but did not result in a conclusion of noncompliance, was Soviet failure to provide complete and accurate technical data in the MOU.

To reiterate, these instances of Soviet noncompliance have been resolved to our satisfaction or are in the process of resolution.

With regard to the ABM Treaty, the United States continues to be concerned about the Krasnoyarsk radar, the location of which is a significant violation of a central element of the Treaty. The radar demonstrates that the Soviets were designing and programming a prospective

violation of the ABM Treaty even while they were negotiating a new agreement on strategic offensive weapons with the United States.

The deployment of the radar near Krasnoyarsk, and the deployment of a Flat Twin radar and a Pawn Shop radar van at Gomel outside a permitted ABM system deployment area or designated ABM test range are violations of the ABM Treaty, while other Soviet ABM-related activities involve potential or probable Soviet violations or other ambiguous activity. These other issues, along with the Krasnoyarsk radar and Gomel, are:

- o the development and testing of components required for an ABM system that could be deployed to a site in months rather than years;
- o the concurrent operation of air defense components and ABM components;
- o the development of modern air defense systems that may have some ABM capabilities; and
- o the demonstration of an ability to reload ABM launchers in a period of time short enough to cause US concern as to Soviet capabilities and intent with regard to rapid reload.

Our continuing reexamination of Soviet ABM-related activities demonstrates that the Soviets have not corrected their outstanding violation, the Krasnoyarsk radar. During the 1988 ABM Treaty Review Conference, US representatives told Soviet representatives that the Krasnoyarsk radar is a significant violation of a central element of the ABM Treaty, and that this violation will continue to raise the issue of material breach and proportionate responses until resolved.

Soviet deployment of the Large Phased Array Radar (LPAR) near Krasnoyarsk, the deployment of the Flat Twin radar and Pawn Shop van observed at Gomel, and the totality of Soviet ABM-related activities in

1988 and previous years, suggest that the USSR may be preparing an ABM defense of its national territory. As President Reagan said in the December 1985 Report, a unilateral Soviet ABM defense:

...would have profound implications for the vital East-West balance. A unilateral Soviet territorial ABM capability acquired in violation of the ABM Treaty could erode our deterrent and leave doubts about its credibility.

The integrity of the arms control process is also compromised by Soviet violations of the 1925 Geneva Protocol on Chemical Weapons and the BWC. Information obtained in 1988 does nothing to allay our concern about Soviet noncompliance with these important agreements.

The United States has determined that the Soviet Union maintains an active offensive biological warfare program and capability in violation of the BWC.

The record of Soviet noncompliance with the treaties on nuclear testing is of political, legal, and military concern. Since the LTBT came into force over 20 years ago, the Soviet Union has conducted its nuclear weapons test program in a manner incompatible with the terms of the Treaty. That conduct has regularly resulted in the release of nuclear debris into the atmosphere beyond the borders of the USSR. When the Soviets ended their unilateral nuclear testing moratorium on February 26, 1987, they resumed their pattern of noncompliance by conducting tests in a way which resulted in the release of radioactive matter into the atmosphere beyond the borders of the USSR. Even though materials from these Soviet tests do not pose calculable health, safety or environmental risks, and the infractions have no apparent military significance, Soviet

authorities have denied that these events have occurred and rebuffed our requests for technical discussions which might lead to prevention of further Soviet venting.

On November 9, 1987, the United States and the Soviet Union began full-scale, stage-by-stage NTT negotiations in which the first step was to agree on effective verification measures which will make it possible to ratify the TTBT and the PNET. Our goal is to complete protocols to the two Treaties and submit them and the Treaties themselves to the Senate for advice and consent as to ratification. As part of those negotiations, the sides agreed to conduct a JVE at each other's test site. JVEs were conducted with a nuclear explosion at the US test site on August 17, 1988, and at the Soviet test site on September 14, 1988.

These JVEs did not change the previous US finding of likely violation. In December 1988, after a comprehensive review of the evidence, the United States reaffirmed that Soviet nuclear testing activities for a number of tests constitute a likely violation of the legal obligations under the TTBT.

The findings and analysis contained in these Reports are an integral part of our approach to arms control and national security policy. We seek sound agreements that are equitable, effectively verifiable, and can strengthen US and Allied security. But such agreements must be faithfully carried out if they are to fulfill those objectives and contribute to a more secure international environment. Ensuring that a country lives up to the commitments it has freely undertaken is essential to the confidence necessary to the whole arms control process.

5 - NUCLEAR NONPROLIFERATION

The US Government views the proliferation of nuclear weapons capability with concern. Special attention is given to the so-called Threshold States that have sought nuclear technology which could be used to develop nuclear weapons.

Recognizing the growing dangers inherent in the proliferation of nuclear weapons technology, the United States Government continued in 1988 to urge that all nonnuclear-weapon states promise not to acquire nuclear weapons, that they make this promise legally binding and that they assure their neighbors and the rest of the world that their nuclear programs are peaceful by submitting them to IAEA safeguards.

Nonproliferation Institutions

The Nuclear Non-proliferation Treaty

The NPT is a cornerstone of international efforts to prevent the further spread of nuclear weapons. With 138 parties as of December 31, 1988, including three states that have nuclear weapons (United States, United Kingdom, and the Soviet Union) while excluding two special category parties which are so designated and listed in Appendix III (St. Christopher-Nevis and Taiwan), the NPT is the most widely adhered-to arms control agreement in history. Nuclear-weapon states that are parties to the NPT have undertaken not to transfer nuclear explosives to states that do not have nuclear weapons or to assist these states to manufacture nuclear explosives. Nonnuclear weapon states that have joined the NPT have promised not to acquire nuclear explosives and to accept IAEA safeguards on all their peaceful nuclear activities.

Parties to the NPT are also committed to cooperate in the development of peaceful uses for nuclear energy. In its efforts to strengthen the NPT, the United States continues to extend preferential treatment in peaceful nuclear cooperation and assistance to NPT parties. Much of this cooperation and assistance is channeled through the IAEA.

The United States also continues to urge broader adherence to the NPT, a goal which the 1985 NPT Review Conference endorsed as the best barrier against nuclear proliferation. On October 3, 1988, Saudi Arabia deposited its instrument of accession to the NPT. Bahrain did likewise on November 3, 1988. The accession of these two nations makes a significant contribution to both regional and international stability.

ACDA began preparations in 1988 for the fourth NPT Review Conference to be held in 1990. Preparations for this Conference included consultations with US allies and friends, the other NPT depositaries (the United Kingdom and the USSR) and many Third World nations. This Conference will be particularly important because the following Conference in 1995, will decide whether to extend the NPT indefinitely or for an additional fixed period or periods.

ACDA is the US lead agency preparing for the 1990 NPT Review Conference. In this capacity, ACDA works closely with other US government agencies and with other countries to achieve an outcome in the Conference that will reaffirm the parties' support for the NPT, as well as the Treaty's invaluable role in preventing the further spread of nuclear weapons.

To promote a better and more complete understanding of the NPT and because of the forthcoming 1990 NPT Review Conference's significance for

the future of nuclear nonproliferation efforts, ACDA began an educational effort in 1988 to promote the Treaty. As part of this effort, ACDA will publish early in 1988 a pamphlet that describes the NPT's many benefits and the need to ensure the Treaty's future vitality. The objective is to educate audiences in non-aligned countries about the NPT so that more world leaders will work actively on the Treaty's behalf. ACDA plans to distribute NPT education material abroad among local media, academic communities, government officials, and others. This will help complement our diplomatic efforts to generate positive attitudes toward the Treaty and toward the objective of a successful 1990 Review Conference.

Nuclear Weapon Free Zones (NWFZ)

Under appropriate conditions and in certain geographic regions, NWFZ arrangements can play a role in international efforts to prevent the further spread of nuclear weapons. The United States has consistently supported proposals in the United Nations to establish NWFZs in Africa, the Middle East, and South Asia.

The United States continues to support the Treaty for the Prohibition of Nuclear Weapons in Latin America (the Treaty of Tlatelolco), which established the first nuclear weapon free zone in a populated area. Under the Treaty of Tlatelolco, the parties forswear the development, manufacture or acquisition of nuclear weapons and accept IAEA safeguards on their nuclear activities. Twenty-three Latin American states are party to the Treaty; however, the Treaty is not in force for Argentina or Brazil -- states that have large, advanced nuclear programs. Nor is the Treaty in force for Chile and Cuba.

Because the Treaty of Tlatelolco provides assurances to Latin American states, their neighbors, and the rest of the world that nuclear activities in the region are for nonexplosive purposes only, the US Government continues to believe that adherence to the Treaty by all countries in Latin America would be a major nuclear nonproliferation achievement.

As evidence of its strong support for the Treaty of Tlatelolco, the United States is party to the Treaty's two additional protocols. These protocols are open to nonregional states with territories in the geographical zone, and to nuclear weapon states, respectively. In 1988, in fulfillment of its obligations under Protocol I, the United States concluded negotiations with the IAEA on a safeguards agreement that applies to Protocol I territories. The United States accords Tlatelolco Parties the same preferential access to the peaceful benefits of nuclear energy that it does for NPT parties.

The International Atomic Energy Agency

For over thirty years, the IAEA has been the institutional focal point for international nuclear nonproliferation efforts and for efforts to make the peaceful benefits of nuclear energy more widely available. The IAEA's statutory responsibility is to increase nuclear energy's contribution to peace, worldwide health and prosperity, and to ensure as best it can that assistance provided through the Agency, or under the Agency's control, does not further any military purpose. In fulfilling the latter mandate, the IAEA administers a broad system of international nuclear safeguards to provide assurances that nuclear materials are not diverted to military uses.

IAEA Technical Assistance

The IAEA is the principal international channel for peaceful nuclear assistance in such areas as medicine, agriculture, safety, and industry. The United States is a major source of support for IAEA technical assistance programs, both through voluntary contributions to the Agency's Technical Assistance and Cooperation Fund, and through voluntary "in-kind" contributions. These contributions include equipment for research, donations of expert services, training courses, and fellowships for study in the United States. The United States has exercised considerable discretion over the distribution of these contributions. In doing so, it typically has given preference to states that have joined the NPT or the Treaty of Tlatelolco. In this way the United States has demonstrated tangibly that adherence to the NPT facilitates access to peaceful nuclear technology, an important benefit of the NPT.

The IAEA's technical cooperation activities also include a nuclear safety component that provides training and support for safe handling of nuclear materials. Nuclear safety activities during 1988 continued to be prominent in IAEA deliberations as states remained committed to increasing international cooperation on nuclear safety issues and to minimize the possibility for another nuclear accident similar to the explosion in 1986 at Chernobyl. In this context, adherence to the IAEA's two conventions on emergency notification and emergency assistance in the event of nuclear accidents with potential for international effects continued to grow. These conventions entered into force for the United States on October 20, 1988.

ACDA continues to supply the expertise to review and monitor IAEA's various technical programs. Some technologies that increase nuclear proliferation risks were discouraged, while other activities that reduce potential proliferation risks were supported. A technical expert from ACDA, for example, chairs the IAEA Advisory Group for Spent Fuel Management. This group reviewed the IAEA program that deals with spent nuclear fuels. It advised the IAEA that the program should focus on the needs that a majority of IAEA members have in the "back end" of the fuel cycle, like technologies relating to the long-term storage of nuclear fuel, rather than on reprocessing of nuclear fuels. The US Government believes that nuclear proliferation risks have been reduced worldwide by IAEA's efforts to present acceptable alternatives for the management of spent nuclear fuels, where, for example, economic and environmental conditions do not presently justify plutonium separation or reprocessing.

IAEA Political Developments

Again in 1988, the IAEA confronted international efforts to focus particular attention on the nuclear activities of Israel and South Africa. The US Government vigorously opposed efforts to introduce these extraneous political issues into the IAEA. If injected into IAEA proceedings, such controversies would interfere with the Agency's ability to implement its technical responsibilities in other important areas of international concern, like nuclear safeguards, safety, and peaceful nuclear cooperation with developing countries. Because of the IAEA's need to carry out these important responsibilities without hindrance, many countries have supported the US government's position in the matter.

In 1988, the IAEA revisited the question of whether to suspend South Africa's rights and privileges as an IAEA member. Following South African President Botha's announcement in September 1987 that South Africa was prepared to begin negotiations on the possibility of signing the NPT, the IAEA General Conference adopted a resolution that deferred, until the 1988 General Conference, a final decision on South African suspension. The US Government continued to support firmly the principle of universal membership in international organizations, including the IAEA. Moreover, there is no legal justification under the IAEA statute to suspend South Africa from the Agency even though South Africa's apartheid system is abhorrent. In 1988, renewed South African expressions of interest in joining the NPT again averted efforts to suspend South Africa from the IAEA, and the 1988 IAEA General Conference again deferred a decision on South Africa's suspension.

With respect to Israel, the IAEA in 1988 again adopted, over US objections, a resolution concerning Israeli nuclear capabilities. However, no effort was made to limit illegally Israel's rights and privileges as an IAEA member.

IAEA Safeguards Developments

As in the past, the IAEA has made major contributions to international nuclear nonproliferation efforts by providing assurances that safeguarded nuclear programs are conducted only for peaceful purposes. The IAEA's international nuclear safeguards system was developed to help dissuade potential proliferants from using nuclear materials for other than peaceful uses, and to detect diversions of these materials from peaceful uses if they were to occur. IAEA safeguards form a comprehensive system

of accounting and reporting procedures, on-site inspection (OSI), and equipment for nuclear material measurements and surveillance. The system is based on a network of 160 separate international agreements between the IAEA and participating states.

The IAEA has been actively involved in administering the safeguards program, which is integral to the NPT's purpose in preventing the spread of nuclear weapons to additional states. For example, the IAEA in 1987 safeguarded approximately 8,800 kilograms of separated plutonium; about 225,000 kilograms of plutonium contained in irradiated nuclear reactor fuels; over 12,000 kilograms of high enriched uranium; about 29,000 tons of low enriched uranium; and 51,000 tons of natural and depleted uranium. In safeguarding these materials, almost 500 nuclear facilities were involved, most of which were located in states that do not have nuclear weapons and which accept IAEA safeguards on all their peaceful nuclear activities. The IAEA conducted over 2,100 inspections in 1987; verified the integrity of 12,500 seals; operated over 300 surveillance systems; analyzed 1,300 samples; and made over 1,100,000 data entries into its computer.

In 1988, the United States continued to give full support to the IAEA. It advocated active measures to strengthen the IAEA and enhance its ability to implement nuclear safeguards competently and efficiently. As in previous years, ACDA played a central part in US Government support of the IAEA. Working with the Department of Energy (DOE), the Nuclear Regulatory Commission (NRC), and the Department of State, ACDA sought to improve the application of nuclear safeguards and to raise resources so that the IAEA could continue to meet its nuclear safeguard

responsibilities. ACDA personnel also met regularly with representatives of key countries when such bilateral discussions seemed to be useful in addressing safeguard issues. ACDA also promoted the adoption of advanced safeguard concepts for future civilian nuclear facilities that will process or use separated plutonium as nuclear fuel. In earlier years ACDA played a leading role in the development of these advanced concepts.

OSI of nuclear facilities received significant US attention in 1988. The US Government worked to improve the quality of work that was done by US personnel in the IAEA. Interagency efforts on IAEA safeguards were improved. Well-qualified Americans were recruited to serve at the IAEA. And the orientation program that prepares Americans to live overseas and work at the IAEA in Vienna, Austria, continued to be funded by the US Program of Technical Assistance to IAEA Safeguards. This program, implemented in cooperation with the Foreign Service Institute which has considerable experience training US personnel for overseas service has been well received.

Approximately every six months in 1988, US experts discussed safeguards issues with experts from France, the United Kingdom, the Federal Republic of Germany, Japan, and Euratom. These talks focused mainly on how to implement nuclear safeguards, as well as on other long-standing nuclear safeguards issues. As part of these discussions on technical aspects of nuclear safeguards, ACDA participated in the newly established international project on large-scale reprocessing plants safeguards (LASCAR). This new project involves, in addition to the IAEA, Japan, the United States, the United Kingdom, France, the Federal Republic of Germany, and Euratom.

Physical Protection of Nuclear Materials for Peaceful Uses

ACDA is working with other agencies on issues related to the physical protection of nuclear materials for peaceful uses. Its involvement is a matter of policy and law.

ACDA's efforts in the formulation and implementation of physical protection aspects of US nuclear nonproliferation policy have focused both on minimizing the use of separated high enriched uranium and plutonium in civil nuclear activities, as well as minimizing the risk of theft of such weapons-grade materials. An example of the former is the use of funds from ACDA's research program by the Department of Energy for a program designed to reduce the enrichment of nuclear fuels in certain research and test reactors. Another example is ACDA's support of technologies for the safe long-term storage and disposal of spent power reactor fuel as an alternative to separating plutonium from spent fuel in reprocessing plants.

The physical protection of nuclear materials remains the domestic responsibility of states using US-origin nuclear materials. To minimize the risk of theft or sabotage of weapons-grade materials, ACDA has concentrated on promoting broader adherence to established international guidelines, such as the Convention on the Physical Protection of Nuclear Materials, and on developing bilateral guidelines, such as the physical security arrangements for the shipment by sea of large quantities of separated plutonium, as provided for in the US-Japan Nuclear Cooperation Agreement described below.

The Convention on the Physical Protection of Nuclear Materials was opened for signature on March 3, 1980. The United States ratified the Convention December 13, 1982. The Convention entered into force on

February 8, 1987, 30 days following the deposit of the twenty-first instrument of ratification. The Convention obligates its parties to apply the level of physical protection described therein to nuclear materials while in domestic use, storage or transportation, as well as in international transport. As of November 1988, 24 countries have become parties to the Convention. It is hoped that in the near future all 12 member countries of the European Community, as well as Euratom, will adhere to the Convention.

The US-Japan Peaceful Nuclear Cooperation Agreement

In 1988, more detailed guidelines for the international transportation by air and by sea of large quantities of recovered plutonium from Europe to Japan were agreed to by the governments of the United States and Japan. ACDA participated actively in the development, negotiation, and requisite Congressional reviews of these new arrangements. The new US-Japan Peaceful Nuclear Cooperation Agreement was signed last year and submitted to Congress for review on November 9, 1987. The 90-day Congressional review period expired April 25, 1988. The Japanese Diet completed work on the agreement in May 1988. The United States and Japan exchanged notes on June 17, 1988, and the agreement entered into force 30 days later.

This US-Japan Agreement replaced an existing agreement and established a firmer foundation for peaceful nuclear cooperation between the two countries. The new agreement granted long-term approvals related to Japan's plans to use plutonium in reactor fuel for its nuclear power program. It advanced US nonproliferation objectives by including the upgraded controls required by law for all such new agreements. The

Agreement was unprecedented because it detailed IAEA safeguards and physical protection measures that must be applied to plutonium. In providing such detail, it also established considerable predictability in the exercise of US consent rights, and helped to ensure that US-Japan cooperation on nuclear nonproliferation will not be disrupted by problems that could arise in the two countries' civil nuclear relations.

In concluding the new US-Japan Agreement, the US Government took into account the proliferation risks associated with the transportation and use of plutonium. Such long-term approvals as those granted in the US-Japan Agreement therefore were offered only under the conditions President Reagan specified in 1982. Under these conditions, long-term approvals apply only to countries with effective commitments to nuclear nonproliferation and advanced nuclear power programs, and where such activities do not constitute a nuclear proliferation risk. The only other US nuclear trading partner to be offered such long-term approvals is the European Atomic Energy Community.

The most controversial issue surrounding the US-Japan Peaceful Nuclear Cooperation Agreement was whether the Agreement provided adequate physical protection for plutonium to be transported from Europe to Japan. The Agreement permitted such transport only by air. However, because of concerns expressed both by Congress and the Japanese, an additional arrangement became effective on October 14, 1988, after the prescribed period of Congressional review. It permits shipments of plutonium from Europe to Japan by sea. To provide adequate security, stringent requirements were negotiated for both modes of shipment. These

requirements are expected to improve international standards for all shipments of this kind.

International Export Controls

Export controls contribute to nuclear nonproliferation by making it harder for potential proliferators to acquire nuclear weapons capabilities. Nuclear export controls in this respect provide a longer period of time during which potential proliferating countries might recognize the advantages of not acquiring nuclear weapons. Export controls also serve US nonproliferation objectives by providing supplier countries with some confidence that their nuclear exports are not diverted for use in nuclear explosive programs. Such confidence is essential if nations are to realize the maximum economic and social benefits of peaceful international nuclear commerce.

The NPT reinforces export control objectives by requiring its parties to ensure that IAEA safeguards are applied to certain nuclear exports. A further step in this direction was taken in the late 1970s when a number of supplier countries adopted nuclear export guidelines that went beyond obligations spelled out in the NPT. In addition to these multilateral export control arrangements, each supplier has established its own domestic regulations and conditions for nuclear related exports.

Consultations with key US allies and friends during 1988 regularly included reviews of nuclear export control issues. Such consultations alerted foreign officials of efforts by potential proliferators to procure items for unsafeguarded nuclear programs. The US Government also urged special restraint in nuclear exports to volatile regions such as the Middle East.

There was further progress in 1988 in efforts to update export control lists, specifically in the Soviet-led effort to control exports of equipment for the enrichment of uranium by the gaseous diffusion process. The United States is hopeful that technical agreement on an updated export control list now has been reached, and that participating governments will complete this effort by exchanging notes in the Spring of 1989. Initial discussions also were begun on a similar effort to control equipment that could be used in heavy water production, which is integral to the fuel cycle of nuclear reactors that use natural uranium as fuel.

The United States also continued discussions with other suppliers on dual-use technologies, those that could be of significance in the development of nuclear explosives but could also be used in legitimate nonnuclear activities. The purpose of these discussions was to encourage suppliers of these technologies to improve their own export control systems and to increase international cooperation in preventing such exports from being used by proliferants in nuclear explosives programs or unsafeguarded facilities in the nuclear fuel cycle.

It has also been essential in 1988 that the United States and other concerned nations consult with new "emerging supplier" countries about their nuclear export policies. Much of what so far has been accomplished in export controls by existing nuclear supplier countries could be undermined if these new suppliers were to adopt policies at considerable variance with prevailing export standards. Discussions continued in 1988 with a number of emerging supplier countries, including Argentina, Brazil, and the Republic of Korea. The latter country was provided a three-month

training program. The results of these efforts were, and continue to be, positive.

Bilateral Nonproliferation Discussions

Each year the United States holds bilateral discussions with other nations on a variety of nuclear cooperation and nonproliferation issues. In 1988, the United States met in January, June, and December with the Soviet Union. Bilateral discussions with Canada were held in May and December.

These bilateral discussions addressed a full range of nuclear nonproliferation issues, but particularly: safeguards and technical assistance administered by the IAEA, countries and regions of special nuclear nonproliferation concern, export controls, bilateral nuclear matters, the NPT and preparations for the fourth NPT Review Conference. Similar meetings were held with France and the Netherlands in February 1988. The United States also began regular bilateral discussions with Japan in June 1988 to discuss the recently completed US-Japan nuclear cooperation agreement for nuclear cooperation and related issues. Other matters, notably the NPT, IAEA issues, and export control questions, were also covered in these bilateral discussions.

The United States had other bilateral discussions on nuclear nonproliferation issues with Argentina and Brazil in March 1988. Topics at these sessions included: international nuclear safeguards, the Treaty of Tlatelolco, IAEA matters, export controls, and cooperation on peaceful uses of nuclear energy. Finally, in February, June, and September of 1988 the United States held bilateral or trilateral sessions with China, the Federal Republic of Germany, France, the Soviet Union, and the United

Kingdom. These discussions were held on the margins of the IAEA Board of Governors meetings. Their primary purposes were to consider IAEA budgetary matters, staffing, and nuclear safety issues.

Regional Nuclear Proliferation Issues

South Asia

In 1988 South Asia remained in the forefront of US nuclear proliferation concerns because of the potential for a nuclear arms race in that region. Accordingly, the US continued to encourage India and Pakistan to consider joining the international nonproliferation regime, or to take other nuclear confidence-building measures designed to alleviate their suspicions about each other's nuclear weapons capabilities. Several nuclear confidence-building measures were proposed by Pakistan, including: simultaneous Indian and Pakistani adherence to the NPT, a South Asian NWFZ, a bilateral agreement with India to prohibit nuclear explosive testing, and inspections by India and Pakistan of each other's nuclear facilities. The US Government encouraged India to respond positively to these Pakistani proposals or to offer proposals of its own. The US Government also encouraged other states to urge India and Pakistani leaders to consider nuclear confidence-building measures. Absent such multilateral and bilateral measures, the US Government continued to urge both India and Pakistan to exercise unilateral restraint in their nuclear programs.

Each year, Congress requires the President to certify that Pakistan does not possess a nuclear explosive device and that US security assistance significantly reduces the risk that Pakistan will possess such a device. This certification, required under the the Pressler Amendment

to the Foreign Assistance Act, satisfies a legal requirement for continued US security assistance to Pakistan. President Reagan recently made that certification for FY 1989. The United States however made clear to Pakistan that this certification did not in any way constitute US approval of Pakistan's unsafeguarded nuclear program.

Last year, the Presidential waiver of the Symington Amendment prohibitions expired, and on January 15, 1988, the President again waived those prohibitions for another two and a half years, thereby permitting continued US security assistance to Pakistan until 1990. The Symington Amendment to the Foreign Assistance Act prohibited most forms of military and economic assistance to countries that deliver or receive unsafeguarded uranium enrichment equipment.

In December 1987, a Canadian citizen of Pakistani origin was convicted for attempting to export illegally from the United States materials for use in Pakistan's unsafeguarded nuclear program. Subsequently, the President determined that this attempt triggered the Solarz Amendment to the Foreign Assistance Act, which concerned illegal nuclear procurement. The President, however, waived the sanctions mandated by the Solarz Amendment by determining that halting US assistance to Pakistan would be "seriously prejudicial" to US nonproliferation objectives and would jeopardize the "common defense and security." The United States emphasized to Pakistan that US law strictly precluded export of US-origin goods for use in Pakistan's unsafeguarded nuclear program, and that continued efforts by Pakistan to acquire US goods for its unsafeguarded nuclear program would jeopardize US-Pakistan relations.

The United States continued to urge other countries not to export nuclear materials to India and Pakistan's unsafeguarded nuclear facilities. It also sought to discourage the supply by other countries of power reactors to India and Pakistan in the absence of IAEA full-scope safeguards on all their nuclear programs. Early in 1988, the US Government was concerned to note that India had leased from the Soviet Union a nuclear-powered submarine. The United States opposed the transfer of this submarine to India and discussed with Soviet officials US concerns about that transaction and about the Soviet Union's decision to supply nuclear power reactors to India in the absence of full-scope safeguards.

Although complicated by competing US interests in South Asia, nuclear nonproliferation issues became one of the features of US relations with India and Pakistan during the eight years of President Reagan's Administration. US efforts to avert a South Asian nuclear arms race during this period also heightened the global community's awareness of the importance of preventing the spread of nuclear weapons. With this awareness, the US Government succeeded in persuading a number of other suppliers not to export technology intended for use in India and in Pakistan's unsafeguarded nuclear programs. At the same time, however, the United States has been unsuccessful over the past eight years at persuading Indian and Pakistani leaders to agree jointly to nuclear confidence-building measures or to take unilateral steps to reduce the risk of a South Asian nuclear arms race. The United States continues through diplomatic channels to urge Indian and Pakistani leaders to exercise restraint in their nuclear programs and to take adequate steps to prevent the spread of nuclear weapons to the South Asian subcontinent.

Latin America

Argentina and Brazil have large, relatively advanced nuclear programs. Both countries have announced that they have the technological capability to enrich uranium and both are building uranium enrichment plants. They also have small nuclear fuel reprocessing facilities, although these facilities are not yet operational. Brazil, in addition, is publicly committed to developing a nuclear-powered submarine. These and other aspects of Brazil and Argentina's nuclear programs are not subject to international safeguards. Neither country has brought the Treaty of Tlatelolco into force and both have rejected the NPT because, in their view, it discriminates against nonnuclear powers.

In recent years, the Argentine and Brazilian heads of state have pursued a dialogue aimed at promoting bilateral cooperation between their two countries, to include cooperation in nuclear fields. Another purpose of this dialogue has been to provide mutual assurance that nuclear activities in their respective countries do not pose military threats. This dialogue would be most valuable if it led to concrete nonproliferation measures, such as expanded nuclear safeguards coverage in these two countries. The United States believes that Argentina and Brazil could best demonstrate their commitment to nuclear nonproliferation by undertaking a binding treaty obligation not to develop nuclear explosives and to accept IAEA safeguards on all their peaceful nuclear activities.

The US Government has had regular consultations about nuclear nonproliferation matters with officials of Argentina and Brazil since 1983. The US Government has sought in these consultations to explain more clearly its nuclear nonproliferation concerns and interests, as well as

the reasoning behind its nuclear nonproliferation policies. By sharing its own experiences with nuclear safeguards, the US Government also has sought to allay concerns of some Latin American countries that their acceptance of IAEA safeguards would compromise industrial secrets or unacceptably burden their peaceful nuclear programs. Furthermore, the US Government has identified potential areas suitable for bilateral US nuclear cooperation with Latin America states, e.g., in safeguards and nuclear safety. We continue, however, to make clear that as long as Argentina and Brazil continue to maintain unsafeguarded nuclear activities the United States will be severely constrained from engaging with them in substantial peaceful nuclear cooperation.

South Africa

South Africa's unsafeguarded nuclear program is a source of continuing nuclear proliferation concern. Consequently, South Africa's 1987 announcement that it was prepared to begin negotiations on the possibility of signing the NPT was a positive and welcome development. This announcement also served to defuse, for a time, efforts within the IAEA to suspend South Africa's rights and privileges of membership in the Agency. Talks were held in Vienna in August 1988 between South Africa, the United States, and the other two NPT depositary states. In these talks, the depositaries informally discussed the implications of South Africa's 1987 announcement and its interest in joining the NPT. South Africa's adherence to the NPT would be a significant nonproliferation achievement.

The Middle East

Two states in the Middle East, Bahrain and Saudi Arabia, deposited their instruments of accession to the NPT in 1988. Although a number of

key states in the region are parties to the NPT, Israel and several Arab states still refuse to join the Treaty. In 1988, the US Government urged that all states in the region join the NPT or establish a similarly binding NWFZ. The United States continued to refuse to provide significant nuclear assistance to states in the Middle East that do not have comprehensive IAEA safeguards, and it actively encouraged other suppliers to follow the same policy in the region. Because the Middle East is one of the most politically unstable and volatile regions of the world, the US Government believes that special restraint is necessary in the export of nuclear materials and technology to the region.

6 - ARMS AND TECHNOLOGY TRANSFERS

ACDA carries out its arms and technology transfer responsibilities within the framework of statutory requirements and Administration policy. Under the Arms Export Control Act and the Foreign Assistance Act of 1961, as amended, ACDA evaluates proposed arms transfers and military assistance to determine whether and to what extent they might contribute to an arms race; increase the possibility of outbreak or escalation of conflict; or prejudice the development of bilateral or multilateral arms control arrangements.

During 1988, ACDA evaluated more than 1,500 government-to-government and direct commercial arms transfer cases. ACDA also participated in various interagency committees and working groups concerned with arms transfer and security assistance issues. ACDA's Assistant Director for Nuclear and Weapons Control represented the Agency on the senior-level interagency Arms Transfer Management Group, which assists the Under Secretary of State for Security Assistance, Science and Technology in advising the Secretary of State on arms transfer and security assistance matters. In addition, ACDA participated in the Security Assistance Program Review Working Group to develop proposed security assistance programs and legislation. As a member of this working group, the Agency reviewed proposed FY 1990 security assistance programs for each country to ensure that arms control considerations were fully taken into account. In addition, the Agency prepared the arms control section of the Congressional Presentation Document on FY 1990 Security Assistance Programs.

The arms trade continued to exhibit increasing demand by arms recipients for offsets in the form of industrial and commercial compensation as a condition of military purchases. These offsets may include coproduction, licensed production, sub-contractor production, overseas investment, technology transfer, and countertrade. In 1984, the Congress directed the President to report annually on the impact of offsets on the defense preparedness, industrial competitiveness, employment, and trade of the United States. In 1988, ACDA continued its participation in the interagency working group which prepared the fourth annual report to the Congress on the impact of offsets in defense-related exports required by Section 309 of the Defense Production Act (50 USC 2099). The fourth report also meets reporting requirements under Section 825 (d) (1) of the National Defense Authorization Act, Fiscal Year 1989 (P.L. 100-456). An important feature of the fourth annual report is the inclusion of data on offsets secured from a special questionnaire completed by 53 of the nation's leading prime defense contractors.

Regional Arms Transfer Developments

Arms and technology transfers to Europe in 1988 continued to reflect the US commitment to maintaining the strength of the NATO Alliance vis-a-vis the Warsaw Pact. Armament cooperation among NATO members continued to emphasize codevelopment and coproduction of air defense and anti-tank systems to counter the Warsaw Pact's numerical advantage in attack aircraft and armor. Military sales and security assistance were designed to support force modernization of the countries along NATO's critical southern flank. Support of the equipment upgrade requirements of Greece and Turkey has contributed to the capabilities of these Allies to

defend the vital land and sea approaches to the strategic eastern Mediterranean. On the Iberian Peninsula, US arms transfers have continued to assist Spain and Portugal in modernization programs necessary to fulfill their roles in the Alliance.

During the past year, several significant arms transfer developments in the Middle East intensified the focus of world attention on this volatile region. The two most dangerous developments were the proliferation and use of ballistic missiles and the flagrant illegal use of chemical weapons (CW) by Iran and Iraq in the Gulf War. The extensive use of ballistic missiles against civilian targets during the Iran-Iraq war, and the fact that missiles can be fitted with chemical or nuclear warheads, heightened tensions in the region. Moreover, the revelation of China's sale of CSS-2 Intermediate-Range Ballistic Missiles (IRBM) to Saudi Arabia, which thereby joined Israel in an exclusive regional IRBM club, exacerbated the regional arms escalation.

Paralleling the introduction and use of missiles in the Middle East has been the spread of chemical warfare capabilities throughout the region. The use of chemical weapons in the Iran-Iraq war, and by Iraq against its Kurdish population, have eroded the norms against the use of such weapons. Libya also joined the ranks of countries with a CW production facility.

The United States has joined with its six economic summit partners to establish an international Missile Technology Control Regime (MTCR) to limit transfers of nuclear-capable missiles and related technologies. We have also raised our concerns with other countries, including the Soviet Union and the People's Republic of China, about missile proliferation. We

believe it is in the interest of all countries in volatile regions like the Middle East to refrain from further acquisition of these weapons, and have initiated a dialogue with countries inside and outside the region about ways to arrest the spread of missiles.

At the same time, the United States has been actively involved with addressing the challenges of the spread and use of chemical weapons in the Middle East and around the world. During the year, ACDA pursued policies to strengthen the sanctions against illegal CW use and discourage the acquisition of missiles through the MTCR and other possible arms control arrangements.

US arms transfer policy in the Middle East continued to focus primarily on Egypt, Israel, and the security requirements of the Gulf Cooperation Council. The United States provided \$1.8 billion in Foreign Military Sales (FMS) forgiven credits to Israel to maintain the capability to defend itself against any potential combination of aggressors, and \$1.3 billion in forgiven FMS credits to Egypt to support modernization of its military forces and replace Soviet systems. In the Gulf, the United States and Kuwait in August entered into a \$1.9 billion FMS agreement for the sale of 40 F/A-18 aircraft and 300 Maverick air-to-surface missiles. Secretary of State Shultz sent a special letter to Congress on August 3 to address various concerns that had been expressed and to convey Kuwait assurances on basing, refueling capability, and security of the equipment.

The United States continued its policy of denying arms sales to Iran through Operation Staunch. This action, along with the actions of other governments, contributed to Iran's acceptance of United Nations Security Council Resolution 598 and all that it signified: an end to the war and

negotiations which address the basic concerns of both belligerents. On August 20 a cease-fire took effect and a UN observer force was established to patrol the cease-fire lines and report violations.

Perhaps the most significant arms transfer activity in the Middle East during the past year concerned the announcement of a \$3 billion sale of arms by the United Kingdom to Saudi Arabia. The agreement marked the largest transaction in the lucrative Middle East arms trade to date, and enabled the United Kingdom to supplant the United States as the major arms supplier to Saudi Arabia. The deal is a pointed reminder that friendly Arab states have and will exercise alternatives if their first choice, the United States, does not meet their defense needs.

In South Asia, India's military capabilities were enhanced with the leasing of a Charlie class nuclear-powered submarine (SSN) from the Soviet Union. India is the first Third World country to acquire such a vessel. This transfer inevitably will have repercussions throughout the region. ACDA has taken a leading role in developing US policy and measures to limit SSN proliferation.

Elsewhere in South Asia, Pakistan's firm opposition to the Soviet invasion of Afghanistan and strong support for the Afghan resistance over the past few years have proven critical in forcing the Soviet Union's withdrawal from Afghanistan. On April 14, the Soviet Union signed such an agreement. The US economic and military assistance program, based on a six-year commitment signed in 1986, attempts to ease the enormous security and economic burden Pakistan must bear without affecting the regional balance.

In the sub-Saharan African and the Latin American regions, US military assistance was significantly underfunded or zeroed out due to budget cuts and earmarks in the US Fiscal Year 1988 Security Assistance Appropriation. For sub-Saharan Africa, the largest portion of US assistance to the region continued to be economic aid — about 3 1/2 times the level of military aid. During the year, what little US military assistance was provided to sub-Saharan Africa centered on training, logistics, maintenance, engineering, and transportation — areas that contribute to basic military capability and infrastructure improvements. This year, the recipients of US military assistance included Chad, Kenya, Somalia, Djibouti, Malawi, Niger, Senegal, and Zaire.

In the Latin American and Caribbean region, FY88 regional Military Assistance Program funding was reduced 30 percent from the FY87 level. As a result, only El Salvador, Honduras, Guatemala, Belize, Colombia, and the Dominican Republic, as well as the Eastern Caribbean Regional Program received funding. Other nations in the region were cut off completely. In Central America as well, the largest portion of US assistance continued to be economic aid — about four times the level of military aid.

In East Asia and the Pacific, US security assistance continued to support US interests in regional peace and stability. Arms transfers to the Republic of Korea were designed to enhance that ally's deterrence and defense capabilities against the threat of North Korean aggression. In the Philippines, US security assistance has been responsive to that country's urgent need for modern equipment and training to counter a growing insurgency threat. US arms transfers to Thailand have been designed to buttress its position as a frontline state against Vietnam's

aggressive occupation of Cambodia. The United States has also provided security assistance and arms exports to support the defense modernization objectives of Association of Southeast Asian Nations members.

Foreign Military Sales and commercial arms exports to China remained modest during 1988. While supporting international initiatives to facilitate the transfer of western technology, ACDA actively participated in an ongoing dialogue with China to elicit China's cooperation in international efforts to arrest missile proliferation. US support for Chinese military modernization took into consideration the valid security concerns of other friendly countries of the region. Arms sales to Taiwan continued to reflect US commitments under the Taiwan Relations Act and the United States/China Joint Communiques.

Missile Proliferation

The US Government has long been concerned about the spread of technology used to build missiles capable of carrying weapons of mass destruction, i.e., nuclear, chemical and biological weapons. These concerns were magnified by developments during 1988. The world community witnessed an increasing trade in missile technologies, and the outright sale of intermediate-range missiles by China to Saudi Arabia. For the first time since World War II, missiles were used to attack cities and populations in the Iran-Iraq war. Most ominous of all, the erosion of barriers against the use of chemical weapons, also in the Gulf war, opened the prospect of the use of missiles to deliver chemical weapons.

The United States and its six economic summit partners had already initiated, in 1987, a process to control the proliferation of missile technology through supplier restraint. The MTCR, adhered to by the United

States, Canada, the Federal Republic of Germany, France, Italy, Japan, and the United Kingdom, committed them to refrain from exports of missile technologies which exceed agreed technical parameters. The seven MTCR partners have invited all countries to adhere to the MTCR guidelines. Discussions have been held with a number of missile technology suppliers which are not adherents to the MTCR, including the Soviet Union and the People's Republic of China, to urge them to exercise restraint.

The missile proliferation problem has a demand side as well. A number of countries want to acquire or develop missile capabilities to enhance their security, particularly where adversaries have or are acquiring missiles. Other countries see the export of missiles as an opportunity to earn foreign exchange. In both cases, the necessary technology must be obtained from a relatively few technologically-advanced countries. Demand-driven missile proliferation is of special concern where a recipient is also believed to have the potential to acquire nuclear weapons.

The US Government will continue to work to arrest missile proliferation by applying stringent controls on its own exports, expanding and strengthening the MTCR, urging restraint on the part of other technology suppliers, and encouraging prospective recipient and missile-developing states to adopt effective arms control measures.

7 - RESEARCH AND ANALYSIS

The ACDA statute authorizes and directs the Director "to exercise his powers in such manner as to insure the acquisition of a fund of theoretical and practical knowledge concerning disarmament." Research, both short-run and long-run, on all aspects of arms control and disarmament has been and continues to be one of ACDA's principal functions. While most research projects support the immediate requirements of ongoing negotiations, others have been directed to the ultimate US "goal of a world free from the scourge of war and the dangers and burdens of armaments." Over the years, ACDA has accumulated a wealth of completed research on every conceivable aspect of arms control and disarmament. Most of that research was completed by agency officers in the normal course of their assignments; other research was carried out by private contractors under contract to the agency and under reimbursement agreements with other US Government agencies. An important step in the coordination of ACDA research was taken in August by Director Burns when he established the Policy Planning Group with broad responsibilities over the Agency's research program.

Research assistance within ACDA is provided by the library, the computer center, and the intelligence unit. Furthermore, the regular staff is bolstered by the addition of scholars-in-residence under the auspices of the William C. Foster Fellowship Program. Such academic disciplines as physics, chemistry, and mathematics have figured largely in research activity related to the negotiations and to the preparation of Arms Control Impact Statements. Research in the social sciences,

particularly economics, has been relevant indirectly to negotiation support and directly to assessing the economic impact of treaties and agreements, analyzing defense economics, and building data banks on worldwide defense and economic information.

Economics Research

One of the objectives of arms control is the reduction of global military expenditures. Research in support of this objective in 1988 was directed to analyses of the economic impact of the INF Treaty, defense spending and national budgets, and military procurement. Insofar as the INF Treaty was concerned, ACDA, in cooperation with DoD, established that the implementation of that Treaty would probably cost, over a 13-year period, significantly less than the cost of continuing to deploy the weapons the Treaty eliminates. During the year, research continued on the statutorily-mandated program of the economic effects of arms control.

ACDA economists continued to review Soviet and Eastern European countries' national accounts and to prepare monographs on such issues as General Secretary Gorbachev's economic reforms and their impact on Soviet military spending. A senior ACDA officer, during the spring of 1988, participated in the development of a United Nations report on The Economic and Social Consequences of The Arms Race. ACDA again prepared the annual submission on US defense spending for the UN military expenditures reporting program. And, a senior ACDA economist participated in the preparation of the fourth annual report to Congress on the impact of offsets in military exports.

Operations Analysis and Computer Support

The hardware and software capabilities of the ACDA VAX computer have

been substantially enhanced during 1988 and the operations analysis staff has used these facilities to provide contributions to the evaluation and improvement of verification procedures, the assessment of treaty compliance, the development of verification provisions of proposed treaties, and other facets of negotiation support.

ACDA acquired for the VAX in 1988 high speed memory equipment, a communications network controller, additional terminals and a peripheral computer for graphics production. The new memory equipment and the controller improved the efficiency of the computer so that the number of interactive users could be increased without any decrease in the promptness of the interactive service. The peripheral computer will permit ACDA to use inexpensive off-the-shelf graphics programs, not available for the VAX, that will greatly improve graphics capability and ease of use.

The following enhancements to software have been implemented during the year:

- o A program designed to simulate conventional war (TACWAR) was installed on the VAX. For use in conjunction with this program, ACDA is obtaining a data base containing the standardized conventional forces data set. This will permit ACDA to compare the effects of various conventional force reduction treaty options on NATO's war-fighting capability in Europe.
- o The data base for the ARENA computer program for searching the negotiation records has been substantially augmented. This data base, which is the memory of US arms control negotiations, now

contains about 20,000 records - in some cases going as far back as 1969.

- o A computer program which keeps track of all arms control related external research conducted throughout the US Government (ACORN) has been implemented. This program is used to inform all agencies of on-going research and to assure that no duplication of work occurs. The program is also used to produce the annual report to Congress, required under Section 4 of the Arms Control Act, on a comprehensive list of studies relating to arms control issues.
- o The information retrieval program that permits retrieval of seismic information on underground nuclear explosions (SEISMIC) was used extensively during the year.. This information includes, among other things, date and location of the event, seismic magnitudes from various sources and estimated yields. The information can be printed or conveyed to the graphics program for plotting. The data base for this program contains up-to-date comprehensive information on Soviet, French, and Chinese explosions. Analogous information on US tests, received in 1988, is being incorporated into the seismic data base.
- o A collection of public statements by all persons engaged in verification of arms control treaties is being entered on the VAX computer for retrieval when needed.
- o ACDA installed on the VAX computer a program that permits instant recall of any desired passage from any arms control treaty (PACTS). Recalls can be made on the basis of any word or set that might be contained in the treaty.

- o ACDA is constructing a computerized storage and retrieval system that will keep track of the large number of activities and accumulated data associated with the INF Treaty. The program is capable of maintaining files on various types of inspection reports and transfers of treaty limited items.

The following describes some of the projects completed and various kinds of computer and operations research support provided in 1988:

- o Retrievals of negotiation exchanges were made from ARENA to support implementation of the INF Treaty and for discussions on SALT II by the Standing Consultative Commission and the Defense and Space Talks. This information assisted in the precise interpretation of treaty provisions.
- o Several papers were written in support of the Threshold Test Ban Treaty verification and compliance analysis. Among the topics treated were the possibility of reducing US yield estimates of Soviet underground tests by appropriate selection of the testing site and consideration of ways to interpret the results of the Joint Verification Experiment.
- o A series of color range maps for the Missile Technology Control Regime were produced using the VAX graphics package. This analysis provided an input to an evaluation of the potential danger of missile proliferation throughout the third world.
- o Analyses were also performed to examine strategic weapons requirements. These analyses were useful in evaluating START treaty options.

External Research

ACDA, during 1988, sponsored external research covering a wide range of arms control issues. Research was directed to such general subjects as verification, nuclear safeguards, nuclear test ban monitoring and crisis stability issues. The contracts office also arranged conferences and seminars on crisis stability issues and provided support for the Hubert H. Humphrey Doctoral Fellowship Program.

With respect to verification methodology and assessments, the Congress mandated in 1988 that ACDA allocate \$780,000 for "...external research to assist the Bureau of Verification and Intelligence in making assessments of possible new systems, devices, and capabilities for verification of arms control." The following nine research projects were initiated in support of verification issues: (1) Development of Soviet START Evasion Scenarios, (2) Value of On-Site Inspection Enhancement to Verification, (3) Quick Response Verification Issues, (4) Defense and Space Verification, (5) Observable Surrogates of Strategic Capability, (6) Retrieval of Public Statements on Verification, (7) Remote Verification Technology, (8) Remote-sensing Applications to Ballistic Missile Technology, and (9) A Computer Model for Simulating Conventional Warfare.

The Reduced Enrichment in Research and Test Reactors (RERTR) program is designed to reduce fuel enrichment in research and test reactors. Funds for this program were transferred in FY 1987 and FY 1988 from ACDA to the Department of Energy (DOE) for program execution. The RERTR program was originally funded in the DOE budget (FY 1978 through FY 1986) and will be included in the DOE budget in FY 1990, when it is expected to be brought to conclusion.

The ACDA Library

The ACDA Library maintains a current collection of pertinent books, periodicals, documents, and reference materials. Also available through the Library are information retrieval systems and inter-library loan facilities. The collection complements the much larger Department of State Library collection.

Hubert H. Humphrey Fellowships in Arms Control and Disarmament

Hubert H. Humphrey Fellowships in Arms Control and Disarmament, designed to encourage specialized training and research in arms control, are sponsored by ACDA as a part of its legislatively mandated responsibilities for the conduct, support, and coordination of arms control research. Named in honor of Senator Humphrey, who was a strong arms control advocate, Humphrey fellowships are awarded to advanced graduate students for the purpose of supporting Ph.D. dissertation requirements. Candidates for the J.D. degree are also eligible for Humphrey Fellowships during their third year. Candidate qualifications and their Ph.D. dissertation or J.D. thesis topics must be approved by the selection committee. Eleven rounds of competition have been held since the inception of the program in 1979 and a total of 55 awards have been made to date. The following three fellows were selected for Humphrey Fellowships in 1988:

Richard W. Welts (Harvard College). Topic "International Relations Theory and Soviet Arms Control Behavior since Krushchev".

Peter Lavoy (University of California, Berkeley). Topic: "Nuclear Proliferation, Strategic Imagery, and Regional Stability in South Asia".

David T. Kissella (Yale University). Topic: "In the Shadow of Giants: Arms Transfers and Conflict in the Third World".

William C. Foster Fellows

In December 1983, the Arms Control and Disarmament Act was amended to provide for the establishment of "a program for visiting scholars in the field of arms control and disarmament." The purpose of this program is "to give specialists in the physical sciences and other disciplines relevant to the Agency's activities an opportunity for active participation in the arms control and disarmament activities of the Agency and to gain, for the Agency, the perspective and expertise such persons can offer." The law states that the visiting scholars are to be chosen by a board chaired by the current Director and composed of all former directors of ACDA.

Six scholars were selected for its first program in 1984-85, five for 1985-86, one for 1986-87, two for 1987-88, and two for 1988-89. The scholars' assignments to ACDA were effected under the provisions of the Intergovernmental Personnel Act. In honor of the first director of ACDA, William C. Foster, who died on October 15, 1984, these visiting scholars are known as William C. Foster Fellows. Fellows selected for 1988-89 are:

Fellow & University

Bureau Assignments

Nancy O'Fallon, University of Chicago

Strategic Programs

Robert Gromell, University of Pittsburgh

Nuclear and Weapons Control

Planning began in the Fall of 1988 for the sixth year of the Program.

8 - PUBLICATIONS

ACDA is the key agency for preparing three statutorily-mandated reports, Arms Control Impact Statements (ACIS), Report on Soviet Noncompliance, and Adherence to and Compliance with Agreements. It also submits its statutorily-mandated Annual Report to the President for transmittal to the Congress. In addition to those four statutory reports, ACDA also prepares annually World Military Expenditures and Arms Transfers (WMEAT), a report which, over the years, has become a useful and popular reference document. ACDA also published during 1988 seven issues of Arms Control Update. From time to time, ACDA publishes special reports on specific arms control issues and updates the two compendiums, Arms Control and Disarmament Agreements and Documents on Disarmament.

A significant special report, Understanding The INF Treaty, was published in November. This report, in news magazine publishing style, reviews the post-World War II history leading up to the treaty, its negotiation, ratification and implementation. The 36-page booklet includes seven chapters that provide the historical context to NATO's 1979 two-track decision, a history of the negotiations themselves, the ratification process that took place in both countries, an overview of the inspection and elimination procedures that are now being implemented, and an addendum that addresses many questions frequently asked about the INF Treaty.

Arms Control Impact Statements

This Report to the Congress contains details on certain weapons systems appearing in the Department of Defense and Department of Energy

budget requests together with analyses on the impact such systems have on arms control agreements, treaties, and negotiations. Those weapon systems include nuclear weapon-related programs, defense programs which exceed specified cost ceilings, and other technology and weapons systems which the Executive Branch certifies as having significant effects on arms control.

The FY 1990 ACIS document will be submitted to the Congress January 9, 1989. In addition to a comprehensive statement of the Administration's arms control policies, in-depth arms control impact analyses on the following systems, grouped by Program Elements in specific clusters, were included in the FY 1990 Report: Strategic Defense Initiative, Strategic Offensive Systems, and Chemical Weapons. All of these programs were considered consistent with US arms control policy and obligations and essential to US security interests.

Arms Control Compliance

ACDA is the lead agency in preparing the President's annual submission to Congress, Report on Soviet Noncompliance. The report presents in detail an evaluation of Soviet actions with respect to arms control obligations. The seventh Presidential report in this series was submitted in December 1988. ACDA prepares and the President submits to the Congress annually, Adherence to and Compliance with Agreements. This report contains details of the process by which the US Government ensures US compliance with its arms control obligations, detailed responses to Soviet charges of US noncompliance, and an evaluation of other nations' compliance with international arms control agreements.

ACDA Annual Report

Section 50 of the Arms Control and Disarmament Act requires that the President send to the Congress by January 31 of each year an annual report on the activities of ACDA and the nation's arms control agenda. The report includes a complete review of arms control and disarmament goals, research, and activities as well as appraisals of the status and prospects of arms control negotiations and of arms control measures in effect. This edition is the twenty-eighth report in the series.

World Military Expenditures and Arms Transfers

The annual ACDA publication, World Military Expenditures and Arms Transfers (WMEAT), provides a compilation of annual military and other relevant statistics for each of 145 countries over a decade, as well as essays on pertinent topics and special analyses. Military data include military spending, numbers of armed forces, and arms exports and imports in value and quantity terms. Comparative economic data include gross national product, central government expenditures, population, and total exports and imports.

The 1987 WMEAT was published in April 1988. The 1988 WMEAT, scheduled for release in the spring of 1989, will provide worldwide military and other relevant statistics for the period 1979-1986, as well as arms transfer data through 1987. Copies are available from the Government Printing Office.

Documents on Disarmament

The 1985 volume of ACDA's historical series, Documents on Disarmament, will be released early in 1989. Each volume of the series, begun in 1960, contains complete details on significant arms control and disarmament

activities by printing the textual materials of treaties, agreements, laws, reports, statements, resolutions, communiques, proposals, declarations, and speeches of both US and foreign origin. Volumes are available to the public through the US Government Printing Office.

Arms Control Update

Arms Control Update, an eight-page ACDA newsletter, completed its first full year of publication in December 1988. The serially-published newsletter reviews recent developments in arms control and contains excerpts from administration statements on US arms control policy. Each of the seven 1988 issues contained broad overviews of US arms control activities and provided information about other, more in-depth, publications. Free subscriptions to Arms Control Update can be obtained by writing to ACDA's Office of Public Affairs.

9 - ACDA ORGANIZATION

ACDA, organized under the Director, includes four bureaus and four offices. Each bureau, under the direction of an assistant director appointed by the President and confirmed by the Senate, is further broken down into divisions, each responsible for specific areas of ACDA's mandate. ACDA's authorized full-time equivalent personnel complement during the year reached 212, with an additional 57 positions approved for detailees from the Department of State and the Department of Defense.

Office of the Director

The Director and Deputy Director advise the President, the National Security Council, the Secretary of State, and other senior government officials on arms control and disarmament matters, and their relationship to other aspects of overall national security policy. The Director is responsible for all ACDA operations and activities. The Office of the Director provides policy guidance to all ACDA elements and includes the following distinct areas of responsibility:

The Executive Assistant

The Executive Assistant to the Director acts as personal advisor and oversees implementation of Agency policies, i.e., personnel actions, administrative issues and budgetary matters as the Director designates.

The Executive Secretary

The Executive Secretary coordinates staff work and paper flow for the Director and assists the Director in keeping policy, organizational, and functional aspects of arms control matters in phase.

Senior Policy Adviser

The Senior Policy Adviser is the Director's permanent representative to the Arms Control Support Group and is Director of The Policy Planning Group.

Policy Planning Group

The Policy Planning Group (D/PPG) advises the Director and other Agency principals on major issues confronting US arms control policy that cut across different areas of responsibility in the Agency from a wide and independent perspective.

The Special Representatives for Arms Control and Disarmament Negotiations

The Special Representative for Arms Control and Disarmament Negotiations, appointed by the President with the advice and consent of the Senate and with the rank of Ambassador, advises the President and the Secretary of State on international arms control negotiations and related matters.

The Office of Negotiations on Nuclear and Space Arms

The Office of Negotiations on Nuclear and Space Arms in Geneva was established by the State Department as a diplomatic mission for the expanded negotiations on defense and space weapons, strategic nuclear weapons, and intermediate-range nuclear weapons. Consistent with ACDA's statutory authority, ACDA manages the operation of these negotiations under the direction of the President and the Secretary of State. Personnel of this office are detailed by the State Department to ACDA on a reimbursable basis.

**The US Representative to the Conference
on Disarmament**

The US Representative to the Conference on Disarmament (CD) with the rank of Ambassador leads the US delegation to the CD in Geneva, the UN Disarmament Commission, the United Nations General Assembly First Committee, and, as requested by the Director, also represents him in other negotiations having arms control significance.

**The US Commissioner of the US/USSR Standing
Consultative Commission**

The US Commissioner of the US/USSR Standing Consultative Commission (SCC), under the direction of the President through the mechanism of the National Security Council, represents the United States in the SCC and heads the US Component of the Commission. He holds the rank of Ambassador.

US Representative, Special Verification Commission

The US Representative, Special Verification Commission, represents the United States and heads the US component of the Commission.

The Senior Military Advisor

The Senior Military Advisor provides high-level liaison with the Office of the Secretary of Defense and the Joint Chiefs of Staff in policy formulation, arms control negotiations, and ACDA operations.

**The Executive Director of the General Advisory
Committee**

The Executive Director of the General Advisory Committee (GAC) supports this presidential policy advisory body consisting of up to fifteen members in its exercise of broad statutory responsibilities on

law, reports to the President, the Secretary of State, and the ACDA Director on its findings and recommendations, and provides independent assessments of pertinent arms control matters to these GAC charter reportees.

Bureau of Strategic Programs

The Bureau of Strategic Programs (SP) is responsible, within ACDA, for US-Soviet nuclear arms control. SP, in coordination with other US agencies, develops US nuclear arms control policies for Presidential approval, supports negotiations on nuclear arms control and provides analytical support for these efforts. These efforts include support for the Nuclear and Space Talks in Geneva, chairing the Defense and Space Interagency Group and the backstopping committees in Washington for these negotiations. In addition, SP organizes and provides backstopping for the twice-yearly meetings of the Standing Consultative Commission, as well as for the five-year review of the Anti-Ballistic Missile Treaty. SP is a member of various other administration interagency groups related to strategic arms control. ACDA provides primary administrative support for bilateral arms control.

The Director of ACDA is advised by SP on all matters related to strategic arms control, including the above negotiations, the Strategic Defense Initiative, and arms control compliance.

SP is responsible for consultation and coordination with allied and other foreign governments on US/Soviet arms control negotiations. The Bureau integrates allied and other foreign government views into analyses and planning for negotiating positions, and maintains the official record of all relevant documents, speeches, significant comments, and general

material related to bilateral arms control and negotiations. SP coordinates with other agencies on research and policy studies to support the development of a comprehensive and effective arms control program. The Bureau also conducts external research on the technical and political implications of current and proposed negotiating options. This research supports implementation of existing agreements, ongoing negotiations, and planning for future negotiations. The Bureau of Strategic Programs is comprised of three divisions: the Strategic Affairs Division, the Theater Affairs Division and the Defense and Space Division.

Bureau of Multilateral Affairs

The Multilateral Affairs (MA) Bureau develops arms control policy, strategy, and tactics for ongoing multilateral arms control negotiations, and provides organizational support, delegation staffing, and Washington backstopping for multilateral negotiations.

Specifically, the Multilateral Affairs Bureau takes the lead for the preparation of guidance for, and the backstopping of, US delegations to the Conference on Disarmament (CD), multilateral and bilateral chemical weapons negotiations, the United Nations Disarmament Commission (UNDC), and the First Committee of the United Nations General Assembly, and provides general support to Ambassador Friedersdorf who heads these delegations. MA provides much of the staffing for these delegations. MA has the lead within ACDA, and assists other agencies in the US Government, in the preparation of guidance for all conventional arms control negotiations, to include the Mutual and Balanced Force Reductions (MBFR), Conference on Confidence- and Security-Building Measures and Disarmament in Europe (CDE), and the East-West mandate discussions for future

conventional stability talks, as well as for bilateral US-Soviet negotiations on nuclear testing. MA also provides delegation staffing for each of these negotiations. In addition, the MA Bureau has assumed a US Government leadership role for the coordination and oversight of implementation of the Stockholm CDE Document Confidence- and Security-Building Measures in Europe. MA is responsible for consultation and coordination with allied and other foreign governments on these multilateral arms control issues.

The Bureau has responsibility for advising and briefing the Director and Deputy Director for their meetings with foreign country representatives on multilateral issues.

The Bureau has three divisions: European Security Negotiations (ESN), International Security Affairs (ISA), and Science and Technology Policy (STP). All three divisions are staffed with foreign affairs specialists (both Foreign Service and Civil Service), military officers and physical scientists. The ISA Division Chief is responsible for backstopping the CD, the UNGA, and the UNDC, as well as other international issues and negotiations which may arise. The STP Division Chief is responsible for the chemical weapons negotiations, nuclear testing negotiations, and for issues relating to biological weapons.

The Bureau also conducts external research, with emphasis on chemical weapons verification and conventional arms control, in support of ongoing negotiations.

Bureau of Verification and Intelligence

The Bureau of Verification and Intelligence, established in 1981, provides a focal point within ACDA and the US Government for formulating

US arms control verification policy and for assessing Soviet compliance with arms control agreements.

The Bureau is divided into three divisions: the Verification Division which deals with verification and compliance issues, the Operations Analysis Division which performs analytical studies and provides computer support, and the Intelligence Division which performs intelligence studies and provides ACDA with necessary intelligence information.

The bureau plans, organizes and supervises studies and policy papers prepared within the agency and reviews those prepared by other organizations dealing with the verifiability of provisions of current and projected arms control agreements; provides for the Director's use the assessments of verifiability and other information called for in the Arms Control and Disarmament Act (as amended); prepares analysis of information pertaining to compliance by other states with existing arms control agreements to which the United States is a party; makes assessments of possible new systems, devices, and capabilities for verification; conducts liaison with intelligence and scientific agencies concerned with systems, techniques, and instruments useful for verification; makes arrangements for and participates in discussions of US and international bodies involved in the verification of and compliance with arms control agreements; and provides intelligence information pertinent to the planning for arms control discussions, the conduct of negotiations, and the assessment of compliance.

Given the critical importance of verification and compliance in November 1982, the President established a high-level committee for oversight of compliance with existing arms control agreements and for

assuring the verifiability of agreements being negotiated. The Assistant Director for Verification and Intelligence is a member of the Arms Control Verification Committee (chaired by the Assistant to the President for National Security Affairs) and Co-Chairman of the Analysis Group under this committee. This analysis group has been responsible for the preparation and interagency coordination of seven Presidential Reports on Soviet Noncompliance.

The Bureau is also responsible for liaison action with the intelligence community including storing and controlling the handling of all documents that contain special intelligence material, assisting Agency personnel in obtaining the necessary access to sensitive compartmented information, and disseminating and enforcing all regulations that pertain to discussions, visits, and other exchanges of information that involve special intelligence data.

The Bureau also provides operations analysis and computer support for all ACDA activities.

Bureau of Nuclear and Weapons Control

The Bureau of Nuclear and Weapons Control, organized into four divisions, is responsible for ACDA activities on nuclear nonproliferation issues, international safeguards, arms and technology transfers, arms control impact studies, defense economics and economics of arms control, military expenditure recording and analysis, and weapons analyses.

The International Nuclear Affairs Division provides advice, assessments, and policy recommendations on the international relations aspects of nonproliferation including the following areas: the Treaty on the Non-Proliferation of Nuclear Weapons; the Treaty of Tlatelolco (Latin

American Nuclear Weapons Free Zone); policy issues at the International Atomic Energy Agency (IAEA); cooperation among nuclear supplier countries, especially multilateral export controls; and US agreements for civil nuclear cooperation. The INA Division is also responsible for preparing the unclassified Nuclear Proliferation Assessment Statement that is required by law for each proposed agreement for peaceful cooperation, and for providing ACDA views on US nuclear export control issues.

The Nuclear Safeguards and Technology Division provides advice and policy recommendations on the IAEA safeguards system, nuclear fuel cycles, and the technology aspects of nonproliferation. Staffed by physical science officers, this Division develops safeguards concepts, monitors and seeks to strengthen the IAEA safeguards system, holds bilateral consultations on these matters with experts abroad, participates in guiding the US Program of Technical Assistance for IAEA Safeguards and recruiting/training of US nationals for service at the IAEA, and makes recommendations on new safeguards agreements. Further, the Division monitors and helps guide the IAEA's program of technical assistance, assesses the safeguards and nonproliferation implications of emerging technologies, assists in implementation of nonproliferation initiatives such as spent fuel storage, and directs the US program on Reduced Enrichment for Research and Test Reactors.

The Arms Transfer Division assesses the arms control implications of proposed arms transfers and technology transfers; represents ACDA in the preparation of the Administration's annual security assistance programs; and participates in the implementation of the Missile Technology Control Regime.

The Defense Programs and Analysis Division is responsible for the annual set of Arms Control Impact Statements (ACIS); the Agency's economic analysis of defense and arms control programs; the analysis of weapons technology; the publication of the ACDA Annual Report and World Military Expenditures and Arms Transfers; and the inspection provisions of the Antarctic Treaty.

Office of General Counsel

This office is responsible for all matters of domestic and international law relevant to ACDA's work. It provides advice and assistance in drafting and negotiating arms control treaties and agreements, and on questions regarding their approval by Congress, implementation, interpretation, ratification, and revision. Attorneys from the office serve as legal advisers on US arms control negotiating delegations (INF, START, nuclear testing talks, and the Conference on Disarmament). The General Counsel is the legal adviser to the head of the Nuclear and Space Talks delegation in Geneva, and other office attorneys serve as legal advisers to the individual negotiating groups. Office attorneys also serve on multilateral negotiating delegations, at conferences reviewing past arms control agreements, and at sessions of the Standing Consultative Commission.

The Office is responsible for legal matters relating to arms control policy formulation and ACDA legislation programs, including drafting such legislation. ACDA attorneys are members of the American Bar Association's Committee on Arms Control, of which the General Counsel is chairman. The Office also handles the legal aspects of Agency policies and operations in

the areas of personnel, ethics, security, patents, contracts, procurement, fiscal, and administrative matters.

Office of Public Affairs

The Office of Public Affairs (PA) has statutory responsibility for the dissemination and coordination of public information on arms control and disarmament to the public.

PA works to ensure that the media and other priority audiences have an accurate and complete understanding of US arms control policies. The Office also engages in an outreach program to make the public aware of arms control activities through speaking engagements by ACDA officials and through publishing Arms Control Update and a variety of other materials. The office also responds to thousands of information requests annually. Finally, the Office provides the Director and senior Agency officers with advice on public perceptions of US Government arms control policies.

PA represents ACDA on the NSC-chaired Public Diplomacy Interagency Group. This group is responsible for preparing, coordinating, and publishing materials to support the Administration's conduct of public diplomacy activities. ACDA also provides guidance on arms control matters to press spokesmen of other Federal agencies, assists the USIA in preparation of information for use abroad, conducts special programs and conferences for nongovernmental organizations and the news media, and conducts briefings for media representatives, visiting students, and scholars.

PA publishes and distributes a daily compilation of daily press clippings (ACDA News), dispatches a daily cable containing selected press

releases on arms control to US Diplomatic posts overseas, and supplies numerous updates of arms control topics in its Issues Brief series.

The ACDA Historian, a member of the PA staff, publishes the annual Documents on Disarmament, which contains a compilation of arms control documents, communiques, and speeches of both US and foreign origin. PA also provides audio-visual and photographic services for ACDA and manages an arms control reference library which maintains for circulation and reference a collection of books, periodicals, documents, and reference material on arms control and related subjects.

Office of Congressional Affairs

The Office of Congressional Affairs (OCA) responds to Congressional interest in arms control and the Geneva negotiations by arranging briefings and consultations between ACDA officials and Members of Congress and staff. OCA has arranged many arms control seminars for Congressional staff with ACDA officials and frequently with officials from other agencies and departments as well. OCA also works with Congressional committee staffs in arranging hearings at which ACDA officials appear as witnesses. In addition, OCA routinely distributes informational material on arms control issues to Members of Congress and their staffs.

In the months between the signing of the INF Treaty and ratification of the Treaty by the Senate, OCA directed the ACDA INF Treaty Ratification Task Force and served as ACDA's liaison to the White House Office of Legislative Liaison for treaty ratification and to the State Department INF Treaty Ratification Task Force. OCA dealt extensively with the Senate Select Committee on Intelligence and the Senate Foreign Relations Committee. In response to the requests from these two committees, and

from individual Senators and staff, OCA provided information and coordinated briefings, seminars, and speakers.

Office of Administration

The Office of Administration has responsibility for ACDA's administrative management and for providing support to all of its components, including its negotiating staffs in Geneva and Vienna.

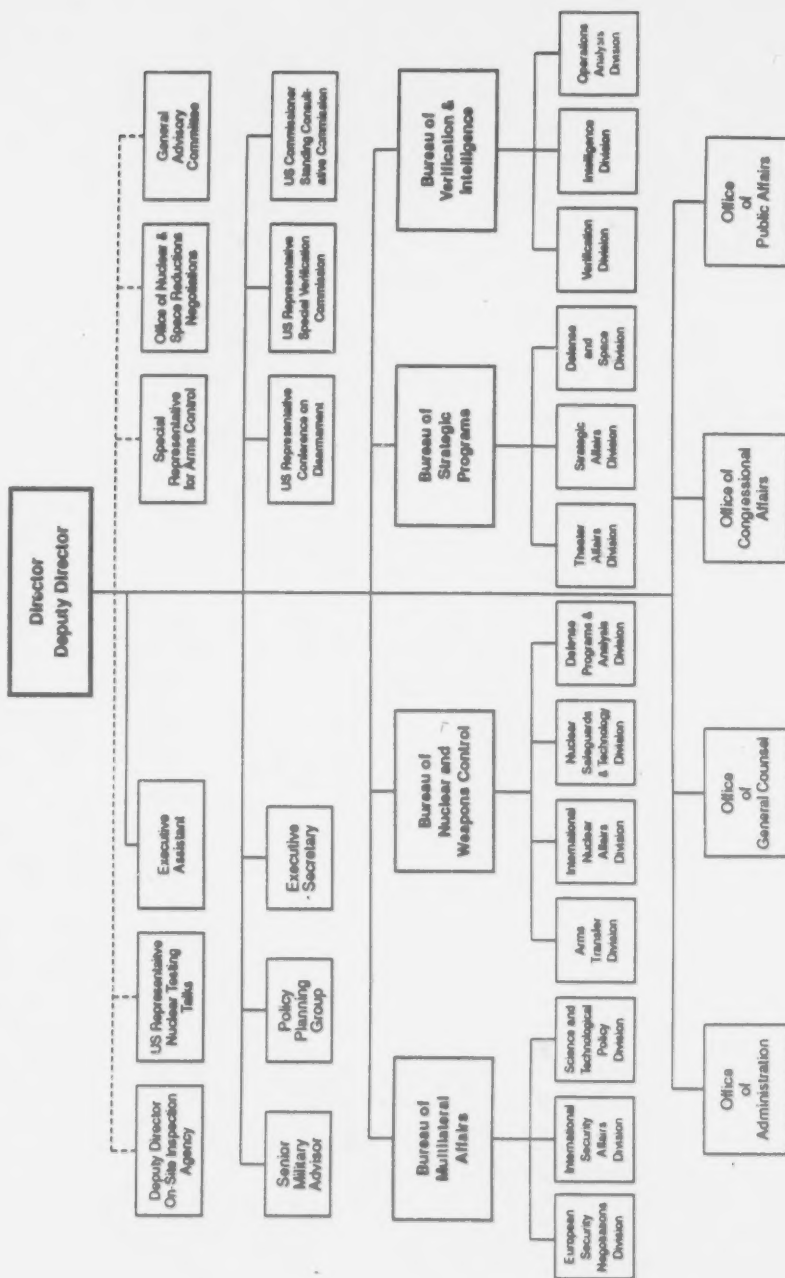
Management duties include the administration of all personnel, budget, fiscal, supply, communications, research contracts, and administrative support. The office maintains close liaison with the Department of State, the General Services Administration, and other organizations providing services on behalf of ACDA.

OFFICIALS OF ACDA
(As of December 31, 1988)

DIRECTOR	William F. Burns
DEPUTY DIRECTOR	George Murphy
THE EXECUTIVE ASSISTANT	LTC Jeff Ankley, USA
EXECUTIVE SECRETARY	Robertta Rifkin
SENIOR POLICY ADVISER	Richard Toye
US REPRESENTATIVE TO THE CONFERENCE ON DISARMAMENT	Max L. Friedersdorf
US COMMISSIONER, STANDING CONSULTATIVE COMMISSION	Richard H. Ellis
US REPRESENTATIVE, SPECIAL VERIFICATION COMMISSION	Steven Steiner
SENIOR MILITARY ADVISOR	BGen Robert Parker, USAF
EXECUTIVE DIRECTOR, GENERAL ADVISORY COMMITTEE	Col. William C. Golbitz, USAF
ASSISTANT DIRECTOR FOR MULTILATERAL AFFAIRS	Lynn M. Hansen
ASSISTANT DIRECTOR FOR NUCLEAR AND WEAPONS CONTROL	Kathleen C. Bailey
ASSISTANT DIRECTOR FOR STRATEGIC PROGRAMS	William Fite
ASSISTANT DIRECTOR FOR VERIFICATION AND INTELLIGENCE	Manfred Eimer
GENERAL COUNSEL	Thomas Graham, Jr.
DIRECTOR OF PUBLIC AFFAIRS	Sigmund Cohen
DIRECTOR OF CONGRESSIONAL AFFAIRS	William S. Shepard
ADMINISTRATIVE DIRECTOR	William J. Montgomery

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

(December 31, 1988)



Appendix I

1988 ARMS CONTROL CHRONOLOGY

- Jan 10-14 US familiarization visit to Semipalatinsk testing site to prepare for nuclear testing Joint Verification Experiment.
- Jan 11-14 Bilateral nonproliferation discussions with the Soviet Union.
- Jan 12-29 Interseasonal meeting of CD ad hoc committee on chemical weapons.
- Jan 14-Mar 15 Round IX of the NST talks held in Geneva.
- Jan 15 US On-Site Inspection Agency created.
- Jan 15 President Reagan waives the prohibitions of the Symington Amendment so that Pakistan can continue to receive US security assistance.
- Jan 22-Mar 25 Conference on Security and Cooperation in Europe (CSCE) Review Conference held in Vienna.
- Jan 25-29 USSR familiarization visit to Nevada Test Site to prepare for nuclear testing Joint Verification Experiment.
- Jan 25-Feb 2 Preparatory Committee for Third UN Special Session on Disarmament meets in New York.
- Jan 25-Mar 24 NATO-Warsaw Pact negotiation session in Vienna on a mandate for future talks on conventional stability in Europe.
- Jan 25 President Reagan transmits the INF Treaty to the US Senate for advice and consent on ratification.
- Jan 28-Mar 17 Round 44 of Mutual and Balanced Force Reductions (MBFR) begins in Vienna.
- Feb 2-Apr 29 Conference on Disarmament (CD) holds 1988 spring session in Geneva.
- Feb 4-6 US inspects military activity in Hungary in accordance with Stockholm CDE Document.
- Feb 12 At the NST, the United States presents a draft Protocol on Inspection and Monitoring, a key element in a START treaty.

- Feb 15-Jun 28 Round II of Nuclear Testing Talks opens in Geneva.
- Feb 19 Bilateral nuclear nonproliferation discussions held with France.
- Feb 19-20 Bilateral nuclear nonproliferation discussions held with France, the Netherlands, the United Kingdom, China, and the Soviet Union on the margins of the IAEA Board of Governors meeting.
- Feb 21-23 Shultz-Shevardnadze Ministerial in Moscow:
(During their Moscow meeting, Secretary Shultz and Foreign Minister Shevardnadze reaffirm the Washington Summit commitment to an intensive effort to complete a START treaty at the earliest possible date. The ministers direct their negotiators to develop joint drafts of Protocols on Inspection and on Conversion or Elimination and a Memorandum of Understanding on data exchange.)
- Feb 22 Bilateral nuclear nonproliferation discussions held with the Netherlands.
- Mar 2 The United States presents a draft Memorandum of Understanding at NST. (The United States has now fulfilled a commitment to present all three of the documents that the ministers said were needed to be addressed by the negotiators prior to the March ministerial.)
- Mar 2 NATO Summit Meeting issues statement on "Conventional Arms Control: The Way Ahead" describing the Alliance's approach to these negotiations.
- Mar 7-11 The Soviets present, at the NST, draft Protocols on Inspection and on Conversion or Elimination, and a draft Memorandum of Understanding on data exchange.
- Mar 7-28 Group of Scientific Experts meet in Geneva.
- Mar 8-10 Bilateral nonproliferation discussions with Argentina in Buenos Aires.
- Mar 8-25 US-USSR bilateral session on chemical weapons held in Geneva.
- Mar 11 USSR inspects military activity in Norway in accordance with Stockholm CDE Document.
- March 14-17 Bilateral nonproliferation discussions with Brazil in Rio De Janeiro.
- Mar 16-Apr 28 SCC XXV held in Geneva.

- Mar 22-23 Shultz-Shevardnadze Ministerial in Washington: Secretary Shultz and Foreign Minister Shevardnadze reaffirm the strong commitment undertaken at the Washington Summit to make an intensive effort to complete a START treaty at the earliest possible date. The ministers review the three joint draft documents prepared by the negotiators and reemphasize their commitment to effective verification measures, agree that the negotiators will seek to resolve the remaining differences in these documents and report on progress at the next ministerial.
- Apr 1 Nuclear Risk Reduction Centers opened in Moscow and in Washington
- Apr 9-11 UK inspects military activity in USSR in accordance with Stockholm CDE Document.
- Apr 10-12 US inspects military activity in the GDR in accordance with Stockholm CDE Document.
- Apr 15 CSCE Review Conference resumes in Vienna.
- Apr 20-Aug 4 NATO-Warsaw Pact mandate negotiations held in Vienna.
- Apr 20-21 Western industrialized countries hold informal discussions on efforts to curb the supply of chemical weapons precursors which could be used to produce chemical weapons for use in Gulf War.
- Apr 22-22 Shultz-Shevardnadze Ministerial held in Moscow.
- Apr 23 US reaffirms invitation to Soviet Union to visit CW destruction facility at Tooele.
- May 1-3 Bulgaria inspects military activity in Italy in accordance with Stockholm CDE Document.
- May 2-20 UN Disarmament Commission (UNDC) meets in New York.
- May 12 NST delegations leaders sign in Geneva two documents clarifying INF Treaty issues.
- May 19-Jul 2 Round 45 of MBFR talks held in Vienna.
- May 25-26 Bilateral nuclear nonproliferation discussions held with Canada.
- May 27 Resolution on INF Treaty ratification completed by Senate.
- May 29-Jun 1 US-USSR Summit in Moscow; JVE agreement in nuclear testing signed.

- May 31-Jun 26 UN Third Special Session on Disarmament (SSOD-III) held in New York.
- Jun 1 INF Treaty enters into force.
- Jun 6-10 Bilateral nuclear nonproliferation discussions held with France, Federal Republic of Germany, United Kingdom, China, and the Soviet Union on the margins of the IAEA Board of Governors meeting.
- Jun 7-Jul 15 First Special Verification Committee (SVC) meets in Geneva.
- Jun 13-15 Bilateral nuclear nonproliferation discussions with the Soviet Union.
- Jun 17 The United States and Japan exchange notes on the US-Japan Peaceful Nuclear Cooperation Agreement.
- Jun 24 Bilateral nuclear nonproliferation discussions with Japan.
- Jul 7-Sep 20 CD session held in Geneva.
- Jul 11-29 US-USSR bilateral session on chemical weapons held in Geneva.
- Jul 12-Nov 16 Round X of the NST held in Geneva.
- Jul 21-22 Meeting of chemical industry experts held in Geneva to discuss industry-related aspects of CW negotiations.
- Jul 25-27 US inspects military activity in Poland in accordance with Stockholm CDE Document.
- Jul 25-Aug 5 Group of Scientific Experts meet in Geneva.
- Aug 12-14 FRG inspects military activity in GDR in accordance with Stockholm CDE Document.
- Aug 12 Talks held in Vienna between South Africa and the three NPT depositaries concerning South Africa's possible adherence to the NPT.
- Aug 13 South Africa announces it has the capability to produce nuclear weapons.
- Aug 17 Nuclear testing Joint Verification Experiment: nuclear detonation conducted at Nevada Test Site.
- Aug 23-25 Turkey inspects military activity in Soviet Union in accordance with Stockholm CDE Document.
- Aug 24-31 ABM Treaty Review held in Geneva.

Aug 29-Dec CSCE Review Conference in Vienna.

Aug 29-Dec 15 Round III of Nuclear Testing Talks held in Geneva.

Aug 30 ACDA Director Burns addresses Conference on Disarmament.

Sep 5 NATO-Warsaw Pact mandate talks resume in Vienna.

Sep 7-9 USSR inspects military activity in FRG in accordance with Stockholm CDE Document.

Sep 12-Oct 26 Second SVC meets in Geneva.

Sep 14 Nuclear Testing Joint Verification Experiment: nuclear detonation conducted at Semipalatinsk test site.

Sep 14-16 Bilateral nuclear nonproliferation discussions held with China, the Soviet Union, and the United Kingdom on the margins of the IAEA Board of Governors meeting.

Sep 19-23 32nd Annual General Conference of the International Atomic Energy Agency held in Vienna.

Sep 22 US-USSR Ministerial held in Washington.

Sep 26 UN General Assembly opens in New York; President Reagan gives address, calls for international conference to reaffirm 1925 Geneva Protocol on use of chemical weapons.

Sep 29-Dec 1 Round 46 of MBFR talks held in Vienna.

Oct 3 Saudi Arabia deposits its instrument of accession to the Nuclear Nonproliferation Treaty.

Oct 5-7 USSR inspects military activity in UK in accordance with Stockholm CDE Document.

Oct 14 The US and Japan agree that plutonium can be shipped by sea under the June 17 US-Japan Peaceful Nuclear Cooperation Agreement.

Oct 14-16 US inspects military activity in the USSR in accordance with Stockholm CDE Document.

Oct 17-Nov 30 First Committee of UN General Assembly meets in New York.

Oct 18 ACDA Director Burns addresses UNGA First Committee.

Oct 20 At UNGA First Committee, French Ambassador announces French support of President Reagan's proposed conference on chemical weapons use; extends invitation of French President to Conference to be held in Paris January 7-11.

- Oct 20 The International Atomic Energy Agency Convention on Emergency Notification and Emergency Assistance in the event of nuclear accidents with potential for international effects enters into force.
- Oct 31-Nov 2 US-Soviet experts meet on Krasnoyarsk Radar issue in Geneva.
- Nov 3 Bahrain deposits its instrument of accession to the Nuclear Nonproliferation Treaty, becoming the second Middle East state to do so in 1988.
- Nov 7-9 Poland inspects military activity in FRG in accordance with Stockholm CDE Document.
- Nov 15 CSCE states exchange annual calendars of notifiable military activities in accordance with Stockholm CDE Document.
- Nov 25 NATO states release document "Conventional Forces in Europe: The Fact," a NATO-Warsaw Pact force comparison relevant to the future conventional stability talks.
- Nov 28-Dec 21 Third SVC session held in Geneva.
- Nov 29-Dec 15 CD intersessional discussions on chemical weapons held in Geneva.
- Nov 30-Dec 12 SCC XXXVI held in Geneva.
- Dec 1-2 US-USSR Missile Nonproliferation meetings held in Moscow.
- Dec 6-7 Bilateral nuclear nonproliferation discussions with Canada.
- Dec 7 Soviet General Secretary Gorbachev addresses UN, announces unilateral conventional force reductions in Europe and Asia.
- Dec 8-9 NATO Ministerial held in Brussels. Separate statement on Conventional Arms Control, describing NATO's approach to future conventional stability talks, released.
- Dec 12-15 US-USSR nuclear nonproliferation talks held in Washington.
- Dec 13-15 Western industrialized countries hold informal discussions on efforts to curb the supply of chemical weapons precursors which could be used to produce CW for use in the Gulf War.
- Dec 16-18 US-USSR bilateral discussions on the prevention of proliferation of chemical weapons begins in Bern.
- Dec 15 UN General Assembly session ends.

Appendix II

**BILATERAL ARMS CONTROL RELATED AGREEMENTS CONCLUDED
BETWEEN THE UNITED STATES AND THE SOVIET UNION
June 1963 - December 1988**

<u>Into Force</u>	<u>Entered</u>	<u>Signed</u>
"Hot Line" Agreement	6/20/63	6/20/63
"Hot Line" Improvement and Modernization Agreement	9/30/71	9/30/71
Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War	9/30/71	9/30/71
Agreement on Prevention of Incidents On and Over the High Seas	5/25/72	5/25/72
ABM Treaty	5/26/72	10/3/72
Interim Agreement on the Limitation of Strategic Offensive Arms	5/26/72	10/3/72*
Memorandum of Understanding Regarding Establishment of a Standing Consultative Commission	12/21/72	12/21/72
Protocol to the Agreement of May 25, 1972, on Prevention of Incidents On and Over the High Seas	5/22/73	5/22/73
Agreement on Prevention of Nuclear War	6/22/73	6/22/73
Protocol to the ABM Treaty	7/3/74	5/24/76
Threshold Test Ban Treaty	7/3/74	
Treaty on the Limitation of Underground Nuclear Explosions for Peaceful Purposes	5/28/76	
Treaty on the Limitation of Strategic Offensive Arms	6/18/79**	
Agreement for Improving 1963 and 1971 Direct Communication Link ("Hot Line")	7/17/84	7/17/84
Nuclear Risk Reduction Center Agreement		9/15/87
Treaty on the Elimination of Intermediate-Range and Shorter-Range Nuclear Missiles	12/8/87	6/1/88

* Expired by its terms on October 3, 1977

**If the Treaty had entered into force, it would have expired by its terms on December 31, 1985.

Appendix III
STATUS OF MULTILATERAL ARMS CONTROL AGREEMENTS
as of December 1988

	Antarctic Treaty	Limited Test Ban Treaty	Outer Space Treaty	Latin America Nuclear Free Zone Treaty	Nuclear Non- Proliferation Treaty	Seabed Arms Control Treaty	Geneva Protocol	Biological Weapons Convention	Environmental Modification Convention
Agreement Opened for Signature	12/1/59	8/5/63	1/22/67	2/14/67	7/1/68	2/11/71	6/12/75	4/10/72	5/10/72
Agreement Entered into Force	6/23/61	10/10/63	10/10/67	4/22/68	3/5/70	5/10/72	2/01/78	3/26/75	10/5/78
COUNTRY									
Afghanistan		P	P		P	P	P	P	P
Algeria	S								
Antigua & Barbuda		P	P (1)	P	P	P (1)	P (1)	P	P (1)
Argentina	P	P	P	S	P	P	P	P	P
Australia	P	P	P		P	P	P	P	P
Austria	P	P	P	P	P	P	P	P	P
The Bahamas		P	P	P	P	P	P (1)	P	
Bahrain					P				
Bangladesh	P	P	P		P			P	P
Barbados		P	P	P	P	P	P	P	P
Belgium	P	P	P		P	P	P	P	P
Belize					P		P (1)	P	P
Benin		P	P		P	P	P	P	P
Bhutan		P	P		P	P	P	P	P
Bolivia		P	S	P	P	S	P	P	S
Botswana		P	S		P	P	P (1)	S	
Brazil	P	P	P	S (2)	P	P	P	P	P
Brunei		P	P (1)		P	P (1)	P	P (1)	P (1)
Bulgaria	P	P	P		P	P	P	P	P
Burkina Faso	S	P	P		P	P	P	P	P
Burma		P	P			S		S	
Burundi	S	S	S		P	S		S	

P - Party
S - Signatory

Status of Multilateral
Arms Control Agreements

	Antarctic Treaty	Limited Test Ban Treaty	Outer Space Treaty	Latin America Nuclear Free Zone Treaty	Nuclear Non- Proliferation Treaty	Seabed Arms Control Treaty	Geneva Protocol	Biological Weapons Convention	Environmental Modification Convention
Agreement Opened for Signature	12/1/59	8/5/63	1/22/62	2/14/62	2/1/68	2/11/72	6/17/75	4/10/72	5/18/77
Agreement Entered into Force	6/23/61	10/10/63	10/10/63	4/22/68	3/5/70	5/18/72	2/8/78	3/26/75	10/5/78
COUNTRY									
Byelorussian SSR		P	P			P		P	P
Cambodia					P		P	P	
Cameroon		S	S		P	S			
Canada	P	P	P		P	P	P	P	P
Cape Verde		P			P	P		P	P
Central African Republic		P	S		P	P	P	S	
Chad		P			P				
Chile	P	P	P	S (2)			P	S	
China	P	P	P	P (3)			P	P	
Colombia		P	S	P	P	S		P	
Congo (Brazzaville)					P	P		P	
Costa Rica		P		P	P	S		P	
Cuba	P		P		P	P	P	P	P
Cyprus		P	P		P	P	P	P	P
Czechoslovakia	P	P			P	P	P	P	P
Denmark	P	P	P		P	P	P	P	P
Dominica		P	P (1)		P	P (1)	P (1)	P (1)	P (1)
Dominican Republic		P	P	P	P	P	P	P	P
Ecuador		P	P	P	P	P	P	P	P
Egypt		P	P		P			S	

P - Party
S - Signatory

Status of Multilateral
Arms Control Agreements

	Antarctic Treaty	Limited Test Ban Treaty	Outer Space Treaty	Latin America Nuclear Free Zone Treaty	Seabed Arms Control Treaty	Geneva Protocol	Biological Weapons Convention	Environmental Modification Convention
Agreement Opened for Signature	12/1/59	0/5/63	1/27/62	2/14/62	7/1/68	2/11/71	4/18/72	5/18/72
Agreement Entered into Force	6/23/61	10/10/63	10/18/62	4/22/68	3/5/70	5/18/72	3/26/75	10/5/78
COUNTRY								
El Salvador	P	P	P	P	P	S	S	
Equatorial Guinea					P	S		
Estonia	S	S	S		P	P	P	S
Ethiopia	P	P	P		P	P	P	
Fiji	P	P	P		P	P	P	P
Finland	P	P	P	P(3)S(4)		P	P	
France	P	P	P		P	P	P	
Gabon	P	P	S		P	S	S	
Gambia	P	P	S		P	S	S	
German Democratic Republic	P	P	P	P	P	P	P	P
Germany, Federal	P	P	P	P	P	P	P	P
Republic of Guinea	P	P	P	P	P	P	P	P
Greece	P	P	S		P	P	P	P
Grenada	P	P	P	P	P	P	P	P
Guatemala	P	P	P	P	P	P(1)	P	P
Guinea			P	P	P	S	P	
Guinea-Bissau			P	P	P	S	P	
Guyana	S	S	S		P	P(1)	S	S
Haiti	S	S	S	P	P		S	
Holy See	P	S	S	P		P		S
Honduras	P	S	S	P	P	S	P	

P - Party

S - Signatory

Status of Multilateral
Arms Control Agreements

	Antarctic Treaty	Limited Test Ban Treaty	Outer Space Treaty	Latin America Nuclear Proliferation Treaty	Sealed Arms Control Treaty	Geneva Protocol	Biological Weapons Convention	Environmental Modification Convention
Agreement Opened for Signature	12/1/59	8/5/63	1/22/62	2/14/62	2/11/71	6/17/75	4/10/72	5/18/77
Agreement Entered into Force	6/23/61	10/10/63	10/10/61	4/22/68	5/18/72	2/8/78	3/26/75	10/5/78
COUNTRY								
Hungary	P	P	P		P	P	P	P
Iceland		P	P		P	P	P	S
India	P	P	P		P	P	P	P
Indonesia		P	S		P	P	S	S
Iran		P	S		P	P	S	S
Iraq		P	P		P	P	P	P
Ireland		P	P		P	P	P	P
Israel		P	P		P	P	P	P
Italy	P	P	P		P	P	S	
Ivory Coast		P	P		P	P	P	
Jamaica		S	P	P	P	P	P	P
Japan	P	P	P	P	P	P	P	
Jordan		P	S		P	P	P	
Kenya		P	P		P	P	P	
Kiribati						P (1)		
Korea	P	P	P		P		P	P
Korea, (Dem. Rep.)	P						P	P

P - Party
S - Signatory

Status of Multilateral
Arms Control Agreements

	Antarctic		Limited		Outer		Latin		Nuclear Non-		Scrubed		Biological		Environmental	
	Treaty	Agreement	Treaty	Test Ban	Treaty	Space	Treaty	Free Zone	Treaty	Proliferation	Treaty	Arms	Treaty	Weapons	Convention	Modification
Agreement Opened																
for Signature	12/1/58		8/25/63	1/27/67	2/14/62				7/1/69		2/11/71	6/17/72	4/10/72		5/18/72	
Agreement Entered																
into force	6/22/61		10/10/63	10/10/67	4/22/68				2/5/70		5/18/72	2/8/78	3/26/75		10/5/78	
COUNTRY																
Kuwait	P		P	P					S			P	P	P	P	
Lebanon	P		P	P					P		P	P	P	P	P	
Latvia																
Lesotho	P		P	P					P		S	P	P	P	S	
Liberia	P		P	S					P		P	P	P	S	S	
Libya	P		P	P					P		S	P	P	P	S	
Liechtenstein									P							
Lithuania																
Luxembourg	P		P	S					P		P	P	P	P	S	
Madagascar	P		P	P					P		S	P	P	S	P	
Malawi	P		P	P					P		P	P	P	S	P	
Malaysia	P		P	S					P		P	P	P	S		
Maldives	P		P						P		P	P	P	S		
Mali	S		S	P					P		S	P	P	S		
Malta	P		P						P		P	P	P	P		
Mauritania	P		P						P		P	P	P	P		

P - Party
S - Signatory

Status of Multilateral
Arms Control Agreements

	Antarctic Treaty	Limited Test Ban Treaty	Outer Space Treaty	Latin America Nuclear Free Zone Treaty	Nuclear Non- Proliferation Treaty	Sealed Arms Control Treaty	Geneva Protocol	Biological Weapons Convention	Environmental Modification Convention
Agreement Opened for Signature	12/1/59	8/5/63	1/22/62	2/14/62	7/1/68	2/11/71	6/11/75	4/10/72	5/10/72
Agreement Entered into Force	6/23/61	10/10/63	10/10/62	4/22/68	3/5/70	5/10/72	2/6/78	3/26/75	10/5/78
COUNTRY									
Mauritius		P	P		P	P	P	P	
Mexico		P	P	P	P	P	P	P	
Monaco									
Mongolia		P	P		P	P	P	P	P
Morocco		P	P		P	P	P	S	S
Nauru					P				
Nepal		P	P		P	P	P	S	
Netherlands	P	P	P	P (4)	P	P	P	P	P
New Zealand	P	P	P		P	P	P	P	P
Nicaragua		P	S	P	P	P	S	P	S
Niger		P	P		P	P	P	P	
Nigeria		P	P		P	P	P	P	P
Norway	P	P	P		P	P	P	P	P
Pakistan		P	P		P	P	P	P	
Panama		P	S	P	P	P	P	P	
Papua New Guinea	F	P	P		P		P	P	P
Paraguay		S	P	P	P	S	P	P	
Peru	P		P	P	P	P	P	P	
Philippines		P	S		P	P	P	P	P
Poland	P	P	P		P	P	P	P	S
Portugal		S			P	P	P	P	
Qatar						P	P	P	

P - Party

S - Signatory

Status of Multilateral
Arms Control Agreements

	Antarctic		Limited Test Ban		Outer Space		Latin America Nuclear Free Zone		Nuclear Non-Proliferation		Seabed Arms Control		Geneva Protocol		Biological Weapons Convention		Environmental Modification Convention	
	Treaty	Treaty	Treaty	Treaty	Treaty	Treaty	Treaty	Treaty	Treaty	Treaty	Treaty	Treaty	Treaty	Treaty	Treaty	Treaty	Treaty	
Agreement Opened for Signature	12/1/59	8/5/63	1/22/62	2/14/62					7/1/68	2/11/71	6/11/75	4/18/72	5/18/72					
Agreement Entered into Force	6/23/61	10/10/63	10/10/62	4/22/68					3/5/70	5/18/72	2/8/78	3/26/75	10/5/78					
COUNTRY																		
Romania	P	P	P		P				P	P	P	P				P		
Burundi		P	S						P	P	P	P						
St. Christopher-Nevils					P (1)				P (1)	P (1)	P (1)					P (1)		
Saint Lucia			P (1)						P	P (1)	P (1)					P (1)		
St. Vincent & the Grenadines			P (1)						P	P (1)	P (1)					P (1)		
San Marino		P			P				P	P (1)	P (1)					P (1)		
Sao Tome & Principe									P	P								
Saudi Arabia			P		P				P	P	P	P				P		
Senegal		P							P	S								
Seychelles		P	P		P				P	P	P (1)							
Sierra Leone		P	P		P				P	S	P					S		
Singapore		P	P		P				P	P	P (1)					P		
Solomon Islands			P (1)						P	P (1)	P (1)	P (1)						
Somalia		S	S						P			S						
South Africa	P								P	P	P	P						
Spain	P	P	P		P				P	P	P	P				P		
Sri Lanka		P	P		P				P	P	P	P				P		
Sudan		P	P						P	S	P	P				P		
Suriname																		
Swaziland											P (1)							
Sweden	P	P	P (1)						P	P	P (1)							
Switzerland		P							P	P	P					P		
Syrian Arab Republic		P	P		P				P	P	P	P				S		

P - Party

S - Signatory

Status of Multilateral
Arms Control Agreements

	Antarctic Treaty	Limited Test Ban Treaty	Outer Space Treaty	Latin America Nuclear Free Zone Treaty	Nuclear Non- Proliferation Treaty	Seabed Arms Control Treaty	Geneva Protocol	Biological Weapons Convention	Environmental Modification Convention
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Agreement Entered Into Force	6/23/61	10/10/63	10/10/63	4/22/68	3/5/70	5/18/72	2/8/78	3/26/75	10/5/78
COUNTRY									
Tanzania		P							
Thailand		P	P		P		P		
Togo		P	S		P		P		
Tonga		P	P		P		P		
Trinidad & Tobago		P	S	P	P		P		P
Tunisia		P	P		P		P		S
Turkey		P	P		P		P		S
Tuvalu		P	P		P		P (1)		P
Uganda		P	P		P		P		P
Ukrainian SSR		P	P		P		P		P
USSR	P	P	P	P (3)	P		P		P
United Arab Emirates								S	
United Kingdom	P	P	P	P (3)(4)	P		P		P
United States	P	P	P	P (3)(4)	P		P		P
Uruguay	P	P	P	P	P	S	P		P
Venezuela		P	P	P	P		P		P
Viet Nam, Socialist Republic of									
Western Samoa		P	P		P		P		P

P - Party
S - Signatory

Status of Multilateral
Arms Control Agreements

	Antarctic Treaty	Limited Test Ban Treaty	Outer Space Treaty	Latin America Nuclear Free Zone Treaty	Nuclear Non- Proliferation Treaty	Sealed Arms Control Treaty	Geneva Protocol	Biological Weapons Convention	Environmental Modification Convention
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Agreement Entered into Force	6/23/61	10/10/63	10/10/62	4/22/68	3/5/70	5/18/72	2/8/78	3/28/75	10/5/78
COUNTRY									
Yemen (Aden)	P	P	P		P	P	P	P	P
Yemen (Sana)	S				P	S	P	S	P
Yugoslavia	P	S	S		P	P	P	P	
Zaire	P	S	S		P			P	S
Zambia	P		P			P	P (1)		
Zimbabwe							P (1)		
Taiwan (S)	P	P	P		P	P	P	P	
TOTALS*	36P 116P 12S	98P 28S	29P 3S	140P 1S	88P 22S	132P 2S	110P 27S	59P 17S	

P - Party

S - Signatory

*Includes parties that have generally succeeded to treaty obligations.

Status of Multilateral
Arms Control Agreements

Appendix III

Footnotes

- (1) Based on general declarations concerning treaty obligations applicable prior to independence.
- (2) Also ratified subject to preconditions not yet met.
- (3) Additional Protocol II
- (4) Additional Protocol I
- (5) Instruments of ratification/adherence to these treaties have been deposited in the name of the Republic of China. Effective January 1, 1979, the United States recognized the Government of the People's Republic of China as the sole legal government of China.

Appendix IV

APPEARANCES BY ACDA OFFICIALS
AT 1988 CONGRESSIONAL COMMITTEE HEARINGS/BRIEFINGS

<u>Date</u>	<u>Title</u>	<u>Official</u>	<u>Committee</u>
January 29	INF Hearing	Manfred Eimer	SSCI
January 29	Confirmation Hearing	William Burns	SFRC
February 19	START Hearing	Manfred Eimer	SSCI
February 22	INF	Lucas Fischer	SSCI
February 24	INF	Manfred Eimer	SSCI
February 25	INF	William Burns, Manfred Eimer	SFRC
February 25	START Hearing	William Burns,	SSCI
March 17	INF Treaty	William Burns Manfred Eimer	SFRC
April 28	Nuclear Testing	James McNally	House Members
May 3	Biological Defense and Research Programs	Lynn Hansen	HASC, HFAC, HIIAC
June 28	U.S. Nuclear Testing Policy	William Burns	HFAC
July 13	INF Implementation/ Verification	Manfred Eimer	SSCI
August 4	Nuclear Testing	James McNally	Senate Staff
August 5	Nuclear Testing	O. James Sheaks	House Staff
August 5	Chemical Weapons	Milton Miles	HFAC Staff
August 9	Soviet Conventional Arms Initiatives	Lynn Hansen	HASC

<u>Date</u>	<u>Title</u>	<u>Official</u>	<u>Committee</u>
September 7	TTBT/PNET	Manfred Eimer	SSCI Staff
September 15	ABM Treaty Review	William Fite	SASC Staff
September 27	ABM Treaty Review and Ministerials	William Fite	HFAC
September 29	START & ABM Treaty Review	Lucas Fischer	SSCI
October 4	ABM Treaty Review	William Burns	SFRC
October 20	Missile Technology Control Regime	Kathleen Bailey	HFAC Staff
October 31	D&S, START & Krasnoyarsk	Manfred Eimer William Fite	House & Senate Staff
Novembr 4	Krasnoyarsk	William Burns	House & Senate Staff
November 17	START, Monitoring & Verification	Manfred Eimer	SSCI Staff
December 6	Chemical Weapons	John King O. James Sheaks	SFRC Staff
December 13	Soviet Noncompliance Report	Manfred Eimer	HFAC Staff

Appendix V

GENERAL ADVISORY COMMITTEE

The Arms Control and Disarmament Act (September 1961) provided for the appointment by the President of a General Advisory Committee to advise the ACDA Director on arms control and disarmament policy and activities and, from time to time, to advise the President, the Secretary of State, and the ACDA Director respecting matters affecting disarmament, world peace, and world law.

The 1988 General Advisory Committee consisted of the following members:

William Schneider, Jr. (Chairman): A senior fellow of the Hudson Institute, a private consultant, and former Under Secretary of State for Security Assistance, Science and Technology (1982-1986).

Martin C. Anderson: A senior fellow of the Hoover Institution for War and Peace (Stanford University), a member of the President's Economic Advisory Board, a Trustee of the Ronald Reagan Presidential Foundation, and a member of the Committee on the Present Danger.

Peter H. Dailey: Chairman of the private investment banking company Enniskerry Financial, Ltd. and a former United States Ambassador to Ireland, a former consultant to the Director of Central Intelligence and the Central Intelligence Agency.

James T. Hackett: The editor of The Heritage Foundation publication "The National Security Record." He was formerly the Personnel Officer for the Department of State, the Deputy Executive Secretary of the National Security Council, the Administrative Director of the US Arms Control and Disarmament Agency, and the Associate Director of the US Information Agency.

Roland F. Herbst: A presidential staff member of the California-based research organization, R & D Associates (RDA), and a former Deputy Director, Defense Research and Engineering (Space and Strategic Systems), Office of the Secretary of Defense.

Francis P. Hoerber: President of the Hoeber Corporation, Arlington, Virginia, since 1974; formerly department head and program manager of The Rand Corporation, and a former Deputy Director of the Stanford Research Institute's Strategic Studies Center.

Marjorie S. Holt: A practicing attorney and former Republican Congresswoman from the 4th District of Maryland, 93d-99th Congresses.

Robert B. Hots: An author, lecturer, and Senior Editorial Consultant for McGraw-Hill Publications. Formerly Editor and Publisher, Editor-in-Chief, and Executive Editor of the McGraw-Hill publication "Aviation Week & Space Technology".

Eli S. Jacobs: Principal investor and Chairman of Memorex International N.V., London, and a former President of Bedford-Stuyvesant D and S Corporation.

Jack R. Lousma: An aerospace consultant and adjunct professor of Aerospace Engineering at the University of Michigan. Formerly a member of the astronaut support crews for the Apollo 9, 10, and 13 missions, a pilot for the Skylab-3 mission, backup docking module pilot of the United States' flight crew for the Apollo-Soyuz Test Project, and Commander of the Space Shuttle Columbia on its third orbital test flight.

Charles Burton Marshall: A resident consultant of the System Planning Corporation, Arlington, Virginia, a contributing editor of "The New York Review," and a former Professor of International Politics at the Johns Hopkins University School of International Politics.

Jaime Oaxaca: President of Wilcox Electric, Inc., Kansas City, Missouri, a Sloan Executive Fellow and a member and past Chairman of the Sloan Advisory Council at the Stanford University Graduate School of Business. Formerly Vice President and Assistant General Manager of Northrop Corporation's Electro-Mechanical Division.

John P. Roche: The John M. Olin Distinguished Professor of Civilization and Foreign Affairs at The Fletcher School of Law and Diplomacy, Tufts University, and a member of the United Nations Commission on Human Rights. Formerly Professor of History and Politics and Dean of the Faculty at Brandeis University.

Harriet Fast Scott: A consultant on Soviet military and political-military affairs to numerous government organizations and research institutes, and lecturer at the Army War college, Air University, National War College, United States Military Academy, and various universities.

Richard S. Williamson: A partner in the Chicago-based international law firm of Mayer, Brown & Platt. Formerly Senior Vice President for corporate and international affairs with Beatrice Companies, Inc., US Representative and Chief of Mission to the Vienna Office of the United Nations, chief of the US Delegation to the fourth General Conference of the United Nations Industrial Organization, former member of the US Delegations to the US-USSR Bilateral Negotiations on Nuclear Nonproliferation and to the Nuclear Nonproliferation Treaty Preparatory Conferences.

Appendix VI

ACDA APPROPRIATIONS FOR FISCAL YEAR 1988

ACDA's FY 1988 salary and expense appropriation was \$30,100,000.

UNITED STATES SENATE - OFFICE OF THE SECRETARY
MESSAGES, COMMUNICATIONS, PETITIONS AND MEMORIALS

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A communication from the Director of the United States Arms Control and Disarmament Agency, transmitting, pursuant to law, a report on disarmament issues; to the Committee on Foreign Relations.

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UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY
Washington, D.C. 20451

For Relation

THE DIRECTOR

30 JUN 1979

EC1482

Mr. President:

Section 39 of the Arms Control and Disarmament Act provides that: "Pursuant to his responsibilities under section 31 of this Act, and in order to enhance Congressional and public understanding of arms control and disarmament issues, the Director shall provide to the Congress not later than June 30 of each year, a report setting forth-

- (1) a comprehensive list of studies relating to arms control and disarmament issues concluded during the previous calendar year by government agencies or for government agencies by private institutions or persons; and
- (2) a brief description of each such study."

This report shall be unclassified, with a classified addendum if necessary."

The complete list of studies in response to this legislative requirement is enclosed. Also enclosed is a classified addendum to the report.

In addition, I am sending you summaries of 1987 DOE studies which were not included in last year's report.

Ronald F. Lehman II

Ronald F. Lehman II

Enclosures

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The Honorable
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UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

CONGRESSIONAL REPORT OF
ARMS CONTROL AND DISARMAMENT STUDIES

(REPORTS COMPLETED IN 1988)

30-JUN-89

In response to Section 39
of the
Arms Control and Disarmament Act

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TITLE: (U) Fiscal Year 1989 Arms Control Impact Statements (ACIS)

SPONSOR: ACDA

PERFORMING ORGANIZATION: ACDA/NWC

FEB-88

ABSTRACT:

(U) Document is developed and submitted to Congress in accord with Section 36 of the Arms Control and Disarmament Act. This Report, which is intended to be of value to the executive branch, the Congress, and the public, contains details on certain weapons systems appearing in the Department of Defense and Department of Energy budget requests together with analyses on the impact such systems have on arms control agreements, treaties and negotiations. Those weapon systems include nuclear weapon-related programs, defense programs which exceed specified cost ceilings, and other technology and weapons systems which the Executive Branch certifies as having significant effects on arms control. The FY 1989 ACIS document was submitted to Congress February 18, 1988. In addition to a comprehensive statement of the Administration's arms control policies, in-depth arms control impact analyses on the following systems, grouped by Program Elements in specific clusters, were included in the FY 1989 Report: Strategic Defense Initiative, Strategic Offensive Forces, Space Defense, Chemical Weapons, and Atomic Vapor Laser Isotope Separation. All of these programs were consistent with US arms control policy and obligations and essential to US security interests.

=====

TITLE: (U) World Military Expenditures and Arms Transfers 1987

SPONSOR: ACDA

PERFORMING ORGANIZATION: ACDA/NWC

MAR-88

ABSTRACT:

(U) This report, the eighteenth in a series by the Arms Control and Disarmament Agency, provides a ready reference on military expenditures, arms transfers, armed forces, and related economic data for 145 countries. The report continues ACDA's efforts to provide comprehensive, up-to-date, and accurate data and to include more extensive analyses. New features in this issue include three essays and briefs, a table covering both arms deliveries and arms agreements through 1986, and a section, giving the world rank of all countries for 17 variables in 1985.

UNCLASSIFIED

page 2

TITLE: (U) Adherence to and Compliance with Arms Control Agreements

SPONSOR: ACDA

PERFORMING ORGANIZATION: ACDA/VI

MAR-88

ABSTRACT:

(U)

This report, required annually beginning in 1986 by Section 52 of the Arms Control and Disarmament Act, is often referred to as the "Pell Report". Prepared by the ACDA director in coordination with the Secretaries of State and Defense, the Chairman of the Joint Chiefs of Staff, and the Director of Central Intelligence, it focuses on U.S. compliance with arms control agreements, and Soviet allegations of U.S. noncompliance. It points out, among other things that in recent years the Soviet Union has raised a number of compliance charges against the United States, some of them representing a clear attempt to invent counter-charges in response to legitimate U.S. concerns regarding Soviet noncompliance. In all cases, once the issue was clearly defined, the U.S. Government has provided full responses that should have removed any doubt that the U.S. was and remains in compliance with all treaty obligations and political commitments.

The Report also addresses, briefly and by reference to other U.S. Government documents, the questions of possible Soviet gains from noncompliance, steps to redress any damage to national security and to reduce compliance problems; and actions taken with regard to military forces, by Parties to agreements, in order to comply with such agreements.

The report addresses the above subjects in an unclassified form. An attachment on the use of chemical weapons by countries other than the Soviet Union is classified.

UNCLASSIFIED

page 3

TITLE: (U) Section 903: Report on Compliance by the Soviet Union with the Threshold Test Ban Treaty

SPONSOR: ACDA

PERFORMING ORGANIZATION: ACDA/VI

MAR-88

ABSTRACT:

(U) Section 903 of P.L. 100-180 calls for a report on the use of the current official U.S. method of estimating the yield of Soviet underground nuclear tests to determine the extent to which the Soviet Union is complying with the 150 kiloton limit on underground nuclear tests contained in the Threshold Test Ban Treaty.

Issues relating to Soviet underground nuclear testing practices are discussed in detail in the 1987 Report on Soviet Noncompliance with Arms Control Agreements on the subject of "Nuclear Testing and the 150 Kiloton Limit," dated March 11, 1988. These issues are discussed specifically in the sections "Discussion of Obligations," "Soviet Actions," "Compliance Related Dialogue," "Summary of 1987 Compliance Studies," and in the Annex table, "150 KT Threshold Compliance Issues, Soviet Tests and Related U.S. Demarches." Issues relating to the U.S. underground nuclear testing practices are discussed in the report: "Section 903: Report on Compliance by the Soviet Union with the Threshold Test Ban Treaty - U.S. Underground Testing Practices," unclassified and classified, dated March 11, 1988.

UNCLASSIFIED

page 4

TITLE: (U) President's Report to Congress on Soviet Noncompliance with Arms Control Agreements

SPONSOR: ACDA

PERFORMING ORGANIZATION: ACDA/VI

DEC-88

ABSTRACT:

(U) This report was the fourth in a series required to be submitted by the President to the Congress annually, in classified and unclassified versions, pursuant to Public Law 99-145 (DOD Authorization, FY 86). Other similar such reports submitted during the Reagan Administration include reports dated January 1984, February 1985, a March 1988 Report which dealt exclusively with the Threshold Test Ban Treaty (TTBT), and a 1984 Report on Soviet Noncompliance, prepared for the President by the independent General Advisory Committee on Arms Control. All but the latter were prepared by ACDA in coordination with the Departments of State, Defense, and Energy, and the Central Intelligence Agency.

This report, like previous ones, addresses questions of Soviet noncompliance with existing arms control agreements, including the 1972 Anti-Ballistic Missile (ABM) Treaty, the 1972 Biological and Toxin Weapons Convention (BWC), the 1925 Geneva Protocol on Chemical Weapons, the 1974 Threshold Test Ban Treaty (TTBT) and the 1963 Limited Test Ban Treaty (LTBT). The provisions of the Conference on Security and Cooperation in Europe (CSCE) documents that relate to military security and confidence-building are also treated in this report. It updates the previous assessments of Soviet actions with respect to those agreements; it also provides a summary of Soviet implementation of the 1987 Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Elimination of their Intermediate-Range and Shorter Range Missiles (the INF Treaty).

=====

TITLE: (U) Determination of the Yield of Underground Nuclear Explosions by Hydrodynamic Measurements

SPONSOR: ACDA

PERFORMING ORGANIZATION: ACDA/VI

DEC-88

ABSTRACT:

(U) The hydrodynamic measurement method for determining the yield of an underground nuclear explosion is reviewed. General aspects of data acquisition for the shock wave radius, as a function of time are outlined, and other data required for the interpretation of the shock wave data are summarized. The principal approximations and idealizations which are made in interpreting the data are stated. Two methods of deriving hydrodynamic yield values from shock wave data are given. Implementation of the method in the 1988 Joint Verification Experiment and questions arising in that application are reviewed. Three annexes summarize technical information related to the main text.

UNCLASSIFIED

page 5

TITLE: (U) The Quota Approach to Nuclear Test Limitations

SPONSOR: ACDA

PERFORMING ORGANIZATION: PACIFIC-SIERRA RESEARCH CORP

JAN-88

ABSTRACT:

(U) This study summarizes the major issues in the quota approach to nuclear weapon test limitations for U.S. policymakers. It is a draft final report under a contract funded by DARPA and administered by ACDA.

=====

TITLE: (U) Potential Role for Arms Control in Enhancing Anti-Ballistic Missile Defense

SPONSOR: ACDA

PERFORMING ORGANIZATION: SYSTEM PLANNING CORPORATION

FEB-88

ABSTRACT:

(U) The countermeasures that could potentially threaten the survivability and effectiveness of the components of an ABM defense system were analyzed. Candidate arms control measures were postulated that could diminish the adverse impact of the countermeasures, contribute to a stable transition to a reliance on defense, and result in a favorable cost exchange for the U.S. These were assessed for feasibility, verifiability, and compatibility with U.S. plans, programs and systems. The measures meeting the suitability criteria were aggregated and refined as necessary to derive a final list of candidate arms control measures that have the potential for enhancing ABM defense.

UNCLASSIFIED

page 6

TITLE: (U) Analysis of the U.S. Understanding of the Soviet Concept for a Joint Verification Experiment

SPONSOR: ACDA

PERFORMING ORGANIZATION: PACIFIC-SIERRA RESEARCH CORP

MAR-88

ABSTRACT:

(U) This study by Pacific-Sierra Research Corporation (PSR) reviews and analyzes the U.S. understanding of the Soviet concept for a U.S.-Soviet Joint Verification Experiment. It is a draft final report funded by DARPA and administered by ACDA. This study is one in a series on the general topic of the impact of further nuclear test limitations.

=====

TITLE: (U) Test Limitations and the Soviet Nuclear Test Program

SPONSOR: ACDA

PERFORMING ORGANIZATION: PACIFIC-SIERRA RESEARCH CORP

MAR-88

ABSTRACT:

(U) This study by PSR provides a reference for U.S. policymakers on Soviet policy regarding a nuclear test ban or further limitations on testing and an overview of the conduct of the Soviet nuclear testing program in recent years. It is a final report funded by DARPA and administered by ACDA.

UNCLASSIFIED

page 7

TITLE: (U) Security Aspects of JVE Seismic Stations

SPONSOR: ACDA

PERFORMING ORGANIZATION: PACIFIC-SIERRA RESEARCH CORP

MAR-88

ABSTRACT:

(U) This paper explores the possibility of invading the security of seismic stations deployed during a joint verification experiment.

=====

TITLE: (U) Synopsis of the Nuclear Monitoring Research Program (DARPA)
-- 1982 TO 1987. Release V

SPONSOR: ACDA

PERFORMING ORGANIZATION: PACIFIC-SIERRA RESEARCH CORP

MAR-88

ABSTRACT:

(U) This report presents a summary of the projects sponsored under the Nuclear Monitoring Research Program within the Defense Advanced Research Projects Agency (DARPA) which were active anytime within the period between 1982 and December 1987. The project summaries are presented by program area within DARPA and then by task area and chronologically within each program. Information on approximately six hundred reports from DARPA sponsored projects is included in this volume. This is the fifth of a series of biannual reports summarizing DARPA projects. Both author and key word indices are included for a quick reference guide. Lists of acronyms, explosions, and seismic station codes which appear in the texts are also included.

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page 8

TITLE: (U) Executive Summary: Analysis of Reduced Threshold Testing Issues

SPONSOR: ACDA

PERFORMING ORGANIZATION: PACIFIC-SIERRA RESEARCH CORP

APR-88

ABSTRACT:

(U) This report is a summary of the following detached PSR reports: (1) Analysis of Nuclear Test Yield Limitations, (2) A Technical Review of the Unified Yield Estimate, (3) Test Limitations and the Soviet Nuclear Test Program (4) Detection and Identification Needs for Low Yield Threshold Test Ban Treaties, and (5) Issues in Quota Limits on Nuclear Test Explosions.

The main segments address effects on the Soviet and U.S. nuclear weapon programs, verification, quotas, and overall observations. Short sections on the fundamental reasons for additional nuclear test restrictions and for continued nuclear testing precede the primary research discussion. Many of the arguments covered in these first two segments are not specifically addressed in the technical reports. This information is included here to create balance and a policy-making context for the more technical sections that follow.

=====

TITLE: (U) Strategic Defenses and Political/Military Decision Making

SPONSOR: ACDA

PERFORMING ORGANIZATION: SYSTEM PLANNING CORPORATION
AND SCIENCE APPLICATIONS INTL CORP

APR-88

ABSTRACT:

(U) This report examines the question of the impact of strategic defenses on political/military decision making. In previous studies in the project on Stability and the Offense/Defense Relationship, it was noted that the effects of defenses on stability went beyond quantifiable aspects of military force exchanges. This report, summarizing presentations and discussions at two seminars, investigates the various ways in which offensive and defensive forces may affect political and military decision making on the questions of whether or not to initiate, escalate, or terminate a major war. Its focus is on nonquantitative factors that may affect stability.

UNCLASSIFIED

page 9

TITLE: (U) Potential Evasion of START Treaty SLCM Limits

SPONSOR: ACDA

PERFORMING ORGANIZATION: SYSTEM PLANNING CORP. et al

MAY-88

ABSTRACT:

(U) This study examines a combination of potential numerical limits on SLCMs, collateral constraints and cooperative measures in terms of how the Soviets might be able to violate, evade or circumvent the limits with varying probability of detection. The attractiveness of various evasion schemes is evaluated in terms of technical feasibility, economic cost, and risk of detection.

=====

TITLE: (U) Documentation and Analysis of IAEA Safeguards in U.S. Facilities

SPONSOR: ACDA

PERFORMING ORGANIZATION: COMBUSTION ENGINEERING, INC.

JUN-88

ABSTRACT:

(U) In December 1980, the US/IAEA safeguards Agreement entered into force. Under the terms of this agreement, the IAEA implemented safeguards at the Combustion Engineering low enriched uranium fuel fabrication facility in Windsor, Connecticut (CE-W) during the interval June 1983-December 1985. IAEA inspections during this time provided the U.S. with direct experience with the implementation of IAEA safeguards. Because of the value of this experience with regard to U.S. efforts to assist the development of effective and efficient international safeguards, ACDA contracted with CE-W to document, assess, and report on implementation of IAEA safeguards at its fuel fabrication plant. During the interval June 1983-December 1985, a period of 30 months, a total of 12 inspections was conducted by the IAEA at CE-W. During this period, 121 IAEA mandays were for inspection activities, the three largest of which involved planning, records auditing, and inventory verification. Combustion Engineering's experience with the IAEA has helped develop a better understanding of the work being carried out by the IAEA. This paper provides valuable insight into:

- CE-W's experience with IAEA safeguards.
- Inspection activities carried out by IAEA inspectors at CE-W's low enriched uranium fuel fabrication facility.
- How IAEA and CE-W personnel interfaced with each other.
- The levels of effort required by IAEA and CE-W personnel for IAEA safeguards.

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page 10

TITLE: (U) Artemis System Description and Feasibility Study
Volume I: Executive Summary
Volume II: Report

SPONSOR: ACDA

PERFORMING ORGANIZATION: MITRE CORPORATION

JUL-88

ABSTRACT:

(U) The nation of Japan has a store of spent nuclear reactor fuel rods that it plans to have reprocessed in Europe. Because the reprocessed plutonium represents an attractive target for diversion, a cooperative tracking package called Artemis has been developed to monitor air shipments. The Artemis system will use a satellite link to relay aircraft position data to a Ground Control Center. The system design gives special attention to security, reliability, and maintenance features.

=====

TITLE: (U) Potential Evasion of START Treaty Limits on Reentry
Vehicles and Throw-Weight

SPONSOR: ACDA

PERFORMING ORGANIZATION: SYSTEM PLANNING CORP. et al

JUL-88

ABSTRACT:

(U) An assessment of the verifiability of current U.S. draft START treaty proposals to limit throw-weight and re-entry vehicles (RVs) is presented. The analysis considers scenarios whereby the Soviets could, either legally or illegally, evade the purpose of throw-weight and RV limits by increasing the capability of their legally deployed missiles. The scenarios are then assessed as to their potential risks, costs, and benefits to the Soviets and ranked accordingly. Some changes to U.S. START proposals have also been suggested as a result of the analysis of evasion scenarios.

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page 11

TITLE: (U) Data Collection System Requirements of Remotely Monitored
Sensors Used in Chemical Warfare Treaty Verification

SPONSOR: ACDA

PERFORMING ORGANIZATION: MITRE CORPORATION

SEP-88

ABSTRACT:

(U) Negotiations to limit the production, use and spread of chemical warfare weapons present special problems of monitoring. As a supplement to human inspection, a satellite communications network can serve to reduce the costs and intrusiveness of the inspection process.

=====

TITLE: (U) Potential Evasion of START Treaty Limits on ALCMs and
Heavy Bombers

SPONSOR: ACDA

PERFORMING ORGANIZATION: SYSTEM PLANNING CORP. et al

OCT-88

ABSTRACT:

(U) An assessment of the verifiability of current U.S. draft treaty proposals to limit ALCMs and heavy bombers is presented. The analysis considers scenarios whereby the Soviets could, either legally or illegally, evade the purpose of the ALCM and heavy bomber limits. The scenarios are then assessed as to their potential risks, costs, and benefits to the Soviets and ranked accordingly. Some changes to U.S. START proposals have also been suggested as a result of the analysis.

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page 12

TITLE: (U) Support of NATO Strategy in the 1990's

SPONSOR: DOD

PERFORMING ORGANIZATION: DEPARTMENT OF DEFENSE

JAN-88

ABSTRACT:

(U) The following report concerns U.S. and Allied planning for the future security posture of the North Atlantic Treaty Organization. It responds to the congressional request (spelled out in the appendix) that the Secretary of Defense discuss how Intermediate-range Nuclear Forces (INF) missile reductions fit with NATO objectives and how they relate to the Alliance's flexible response strategy. In so doing, the report reflects consultation with NATO's Supreme Allied Commander, Europe (SACEUR) and the Chairman of the Joint Chiefs of Staff. It concludes seven supporting sections matched to specific questions from the Congress. This overview discusses these important matters involving flexible response, defense requirements, arms control and development programs. All involve issues which are integral to the support of NATO and America's overall strategy -- aimed at bolstering deterrence, strengthening our Allies, and decreasing Soviet military advantages.

=====

TITLE: (U) The New Deterrence: The Strategic Consequences of Arms Control, Containment, and Strategic Defense.

SPONSOR: DOD

PERFORMING ORGANIZATION: NAVAL WAR COLLEGE

FEB-88

ABSTRACT:

(U) This paper suggests that the confluence of current arms control proposals, adjustments in the policy of containment, and strategic defense will change our present form of deterrence. This will alter the strategic relationship that exists between the United States and the Soviet Union. The Soviet Union may adopt an aggressive strategy based upon a new freedom of action which may be produced in the transition to this new deterrence. The United States will find that the effect of reducing nuclear weapons and building strategic defenses will be to alter the basis of the policy of containment. The Soviet Union will use the new political circumstances created by this combination to exploit instability and achieve strategic advances. In order to re-establish a geostrategic equilibrium, a new concept of deterrence will emerge to sustain containment. Prepositioned conventional forces backed by tactical nuclear weapons in zones of denial and supported by powerful maritime forces will constitute the new basis of containment.

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page 13

TITLE: (U) Arms Control and National Security:
Revealed Through Two Case Studies

SPONSOR: DOD

PERFORMING ORGANIZATION: NAVAL POSTGRADUATE SCHOOL

MAR-88

ABSTRACT:

(U) The task of this research is to explore the relationship between arms control and national security. The author suggests that national security issues must dominate arms control initiatives and that the military command establishment should have an expanded role in shaping current arms control initiatives. The author considers two case studies to analyze this relationship. The first case study involves cruise missiles and reveals how issues such as politics, budgets, military missions, technology, stability and verification can impact on arms control negotiations and national security. The second case study shows the control that the military can and should exert in areas dealing with both arms control and national security interests. Lastly, the author proposes how the balance of arms control and national security should be achieved in the future. Theses.

=====

TITLE: (U) Nuclear Stability: A New Definition and Modeling
Methodology.

SPONSOR: DOD

PERFORMING ORGANIZATION: NAVAL WAR COLLEGE

MAR-88

ABSTRACT:

(U) This paper develops both a new definition of nuclear stability and a methodology which uses this definition to evaluate strategic arms control proposals. This proposed definition and methodology describes stability as a dynamic process. The new definition of stability leads directly to the formulation of a mathematical program which allows a country to determine whether it can or cannot execute its national strategy at various levels of conflict intensity. The formulation presented has been designed to permit changes of arms control proposals, conflict environment (defenses), or strategies to be incorporated so a robust experimental design is possible.

UNCLASSIFIED

page 14

TITLE: (U) Global Positioning System Box and BDY Total Dose
Survivability Analysis

SPONSOR: DOD

PERFORMING ORGANIZATION: AIR FORCE WEAPONS LAB

MAR-88

ABSTRACT:

(U) The integrated operational nuclear detection system, also known as the global burst detection system or, more commonly, as the burst detection system (BDS), is a critical subsystem of the global positioning system (GPS) satellite. This system was designed by Sandia and Los Alamos National Laboratories to be used in the verification of the nuclear arms control treaties. The system consists of an X-Ray sensor (BDX) to detect exoatmospheric detonations, an optical sensor (BDY) to detect endoatmospheric detonations, and a burst detection processor (BDP) to process the BDX and BDY signals. This report describes the development of the solid cometatorial geometry computer models of the BDX and BDY. The results of total dose calculations are presented in this report for all the critical electronic components in the BDX and BDY. This analysis used the latest GPS environments with static models of the space radiation levels encountered. Keywords includes: Analysis, BDS, BDX, BDY, Dose, electron dose, ELPEN, PROTON, PROTON Dose, satellite vulnerability codes, SECTOR, Survivability, and total dose.

=====

TITLE: (U) Looking Beyond the Strategic Defense Initiative.

SPONSOR: DOD

PERFORMING ORGANIZATION: ARMY WAR COLLEGE

MAR-88

ABSTRACT:

(U) On 23 March 1983, President Reagan announced a new proposal. This study looks at the Strategic Defense Initiative (SDI) and how it will achieve the objectives President Reagan envisioned in his speech. It examines a scenario in which deterrence has failed and the time for presidential decision making is severely compressed. It then looks at presidential decision making during such a crisis and examines his options. Next, it looks at how the SDI is envisioned to work and contribute to the ultimate goal of eliminating the threat posed by nuclear ballistic missiles. Last, it examines the possibility that SDI may create a world we do not want; a dangerous world in which conventional wars between the two superpowers would become possible, maybe even probable. It does this by examining its impact on NATO, particularly in light of the proposed Intermediate-range Nuclear Forces treaty.

UNCLASSIFIED

page 15

TITLE: (U) Distinction Between Technologies and Capabilities
Within the Militarily Critical Technologies List (MCTL)

SPONSOR: DOD

PERFORMING ORGANIZATION: NAVAL RESEARCH LAB

MAR-88

ABSTRACT:

(U) The study was specifically designed to determine how to make the Militarily Critical Technologies List easier to use in the decision making process, in conjunction with other documents relating to implementation of export controls over militarily critical technologies and products. The results of the study indicate that the critical elements of Part A: arrays of know how of the MCTL in its present format describe not only technologies that are process-related as was initially intended, but in addition, characteristics which depict parametric conditions and/or products which tend to confuse the issue. Consequently, a major impediment for prospective users of the MCTL is lack of technology specificity and focus. The lack of specificity appears to be due to semantics with regard to what the critical elements describe; whether the element describes the arrays of know-how required to design and manufacture the item, or describes instead the capabilities of the item. This report addresses the fact that military capabilities are attributes of products or weapon systems and are customarily controlled by the international trade in arms regulations and/or COCOM; therefore, to list capabilities as if they are technologies is considered by the author to be redundant and disruptive to the subject control process.

=====

TITLE: (U) The Strategic Defense Initiative - Strategic Implications.

SPONSOR: DOD

PERFORMING ORGANIZATION: ARMY WAR COLLEGE

MAR-88

ABSTRACT:

(U) In March 1983, during his address to the nation, President Reagan initiated a major shift in U.S. strategic policy, as he indicated his desire to move away from the condition of mutual vulnerability as the primary deterrent to nuclear war. The Strategic Defense Initiative (SDI), as the vehicle for this shift, has become the focus of debate over implications of a new strategic policy. This study seeks to examine the strategic relationship, and the role of arms control during a transition from an offensive-dominant strategy to a defensive-dominant strategy. The methodology for the study is to present arguments for and against SDI, as they relate to the issues of stability and arms control, evaluate their validity, draw conclusions, and provide recommendations that may enhance international security during a transition period of SDI.

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page 16

TITLE: (U) SDI (Strategic Defense Initiative) and National Security Policy.

SPONSOR: DOD

PERFORMING ORGANIZATION: AIR WAR COLLEGE

APR-88

ABSTRACT:

(U) The paper attempts to answer the fundamental question of 'Can SDI make a significant contribution to US National Security?'. It uses as its evaluation criteria historical arms control measures of stability, reduction in the probability of war, reduction in the consequences of war, economic benefits, and political benefits. A historical discussion of US nuclear strategy development along with Soviet thinking is provided as a backdrop to set the stage for an analysis of the reasons for President Reagan's March 1983 speech. The objectives of SDI are discussed along with the major concerns expressed by the program critics. Using the evaluation criteria defined above, the author analyzes SDI potential position in a long-term integrated national strategy that includes arms control competitive strategies.

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TITLE: (U) Arms Control: The Common Denominator in Superpower Relations.

SPONSOR: DOD

PERFORMING ORGANIZATION: AIR WAR COLLEGE

APR-88

ABSTRACT:

(U) The purpose of this paper is to highlight arms control as a mutually shared interest in superpower relations. Chapter I addresses US Foreign Policy vis-a-vis the USSR and vice versa, and focuses on current superpower national interests. Today, the USSR is preoccupied with economic development and is providing the US with unique opportunities in arms control concessions. The US is concerned with stimulating its economy as well and in reducing federal budget deficits. Chapter II focuses on the specifics of the Intermediate-Range Nuclear Force (INF) Treaty. A review of the background since 1977 leading up to the treaty is presented followed by specific terms of the treaty to include the types of missile systems, timetables and methods of elimination, and the mutual verification scenario. Personnel requirements to implement the treaty are also presented. Chapter III addresses the impact of the INF treaty on NATO doctrine and force employment. Current criticisms of the treaty that relate to the resulting military balance in Europe and US commitment to NATO are presented. US/NATO and Soviet/Warsaw Pact thinking on such areas as defense sufficiency, modernization, and future arms control agreements are also covered.

UNCLASSIFIED

page 17

TITLE: (U) Revitalizing Continental Air Defense for the Strategic Environment of the 1990s.

SPONSOR: DOD

PERFORMING ORGANIZATION: AIR WAR COLLEGE

APR-88

ABSTRACT:

(U) The author advocates the need to revitalize the capability to defend North America from air attack based on the changing strategic environment. After examining the relationship between Continental Air Defense (CAD) and U.S. national defense strategy, he reviews the rationale for the decay of atmospheric defense since the 1960's. He outlines the deficiencies of the current and projected air defense network, matches the capabilities of the Soviet strategic air threat with potential scenarios for its employment against the CONUS, and articulates the interrelationship between the Strategic Defense Initiative and CAD. He then addresses the implications of other technological breakthroughs such as the air defense initiative on the strategic balance, and the impact of arms control agreements on strategic defense. Recommendations for the long and short term revitalization of CAD conclude the report.

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TITLE: (U) The ICBM (Intercontinental Ballistic Missile) Modernization Briefer's Handbook

SPONSOR: DOD

PERFORMING ORGANIZATION: AIR COMMAND AND STAFF COLLEGE

APR-88

ABSTRACT:

(U) This handbook is a guide to assist requirements officers at HQ SAC/XPQ as they present this briefing to the public. It contains information on the history of ICBMs, evolution of national defense strategy, arms control, the various basing modes proposed for MX-peacekeeper, and the rationale for deploying peacekeeper rail garrison and small ICBMS in hard mobile launchers. It is intended to help new briefing officers broaden their knowledge of the historical perspective of ICBM modernization.

UNCLASSIFIED

page 19

TITLE: (U) Graduated Mobilization Response: A Key Element of National Deterrent Strategy.

SPONSOR: DOD

PERFORMING ORGANIZATION: NATIONAL DEFENSE UNIV

APR-88

ABSTRACT:

(U) On 15 September 1987, the National Security Advisor to the President made development of a mobilization doctrine and system based on graduated response to early warning one of the seven priority national security emergency preparedness (NSEP) goals to be achieved by 1989. In the classic construct, mobilization is the act of preparing for war or other emergency through assembling and organizing national resources. It is the process of marshalling industrial, economic, infrastructure, human, and government resources needed to support responses to national security threats and domestic crises. The purpose of graduated mobilization response (GMR) is to provide the national command authorities a range of political, economic, and military options that will assist in the management of a national security crisis. These options are designed with two goals in mind: first, to improve deterrence and avoid war; and second, to prepare for war should it come. From the mid 1950s to the late 1970s national security policymakers probed worst case scenarios like a nuclear attack on the U.S., or a short warning attack on NATO Europe. Such narrow strategic thinking left no opportunity for capitalizing on America's vast economic strength. It also ignored more likely crises, including: natural disasters or terrorism which could destroy substantial portions of our defense and economic infrastructure; a sudden requirement to support an ally or client state in a conflict; a need to respond to technological breakthrough or abrogation of arms control treaties; and other wartime scenarios like: a small, short war; a small war of indefinite length; a long, major war with early warning.

UNCLASSIFIED

page 19

TITLE: (U) The Soviet Union and Nuclear Proliferation:
Policy at a Crossroads.

SPONSOR: DOD

PERFORMING ORGANIZATION: AIR WAR COLLEGE

APR-88

ABSTRACT:

(U) The Soviet Union has been a major participant of the regime of nations dedicated to limiting the spread of nuclear weapons. Since the early 1960's the Soviet Union has worked closely with the United States to limit nuclear proliferation. In no other area of international relations have the stated goals of the two superpowers been more closely aligned. Recent events indicate that the Soviet Union has parted from the original intent of the Nuclear Nonproliferation Treaty and of the international atomic energy agency nuclear safeguards and has begun assisting nations that are not participants of the non-proliferation regime. While not specifically calling for a revision of the Nuclear Nonproliferation Treaty, the Soviet Union has unilaterally assisted in the spread of nuclear technology to nations that have refused to become members of the nuclear nonproliferation regime. This assistance is examined in the context of the overall Soviet nuclear nonproliferation policy or simply placing political goals above that of international agreements is examined. The paper concludes that the Soviet Union will use nuclear technology as a tool to further its strategic goals.

UNCLASSIFIED

page 20

TITLE: (U) Backfire: A Bomber with Political Impact in the Gray Area Between the Strategic and Intermediate-range Missions.

SPONSOR: DOD

PERFORMING ORGANIZATION: FOREIGN TECHNOLOGY DIVISION

APR-88

ABSTRACT:

(U) The terms 'Backfire' in english refers to the improperly timed explosion of fuel mixture in an internal combustion due to values which do not close completely or to the delayed ignition of unburned fuel in the exhaust due to improper adjustment of the carburetor. The bomber NATO has assigned the reporting name Backfire has indeed been responsible for a noisy political row within the alliance. From this point of view, the reporting name is certainly well-chosen. An aircraft of this type had, of course, been anticipated for some time. But the introduction of Backfire during the Strategic Arms Reduction Talks between the United States of America and the Soviet Union endowed this new aircraft with additional political weight. The controversy over whether Backfire is a strategic or an intermediate-range bomber brought the SALT-2 negotiations to a standstill time and again. Supported by German Chancellor Helmut Schmidt, President Gerald Ford was still trying to include Backfire in the SALT-2 agreements. But within three weeks after taking office as President of the United States, Jimmy Carter was already suggesting that Backfire and cruise missiles be excluded from consideration. These two systems had indeed become the only obstacles to an agreement.

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TITLE: (U) Soviet Policy Toward Strategic Arms Reductions, 1982-1987.

SPONSOR: DOD

PERFORMING ORGANIZATION: NAVAL POSTGRADUATE SCHOOL

MAY-88

ABSTRACT:

(U) This report surveys Soviet strategic arms reduction proposals for the period 1982 to 1987. It then analyzes Soviet attitudes and policies toward key elements of the U.S. approach to the strategic arms reduction talks, including U.S. proposals for 'deep cuts', throwweight limitations, reductions in 'heavy' ICBMs, and warheads as a unit of limitation. It concludes with an assessment of Soviet interest in substantial strategic arms reductions, and the prospects for compliance with a prospective START agreement.

UNCLASSIFIED

page 21

TITLE: (U) The Changing Face of Soviet Strategy.

SPONSOR: DOD

PERFORMING ORGANIZATION: AIR WAR COLLEGE

MAY-88

ABSTRACT:

(U) The Soviet Union is our main competitor for power and influence in the world. It has the power to destroy our society, as we know it, within hours. To prevent this from happening, we must understand the Soviet's political and military objectives and strategy relating to global conflict. Evidence exists that suggests that the Soviets may have made, or may be in the process of making, serious revisions in their global nuclear and conventional strategy and doctrine. This paper briefly traces the history of Soviet military strategy and doctrine since World War II and presents evidence that they are at a crossroad in their strategic thinking. They are currently weighing the economic, political, and military consequences of continuing a confrontational, offensive nuclear warfighting strategy, doctrine, and force posture and are considering a change to a less threatening and affordable posture. A brief look at their reaction to President Reagan's Strategic Defense Initiative and General Secretary Gorbachev's latest arms control initiatives reinforces the argument that a shift in Soviet strategy may take place in the near future if America lets it happen.

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TITLE: (U) About the Need for the Mobile, Small ICBM in the 1990s.

SPONSOR: DOD

PERFORMING ORGANIZATION: AIR WAR COLLEGE

MAY-88

ABSTRACT:

(U) A reexamination of the merits and need for the Intercontinental Ballistic Missile (ICBM) is conducted in light of the changes since the 1983 President's commission on strategic forces recommended the development. The history of U.S. declaratory nuclear policy and arms control issues are reviewed to set a foundation for force structure criteria and requirements. The role and effectiveness of the Small ICBM in addressing this nuclear policy and arms control issues are discussed. The new factors of a surviving basing mode for Peacekeeper, declining defense budgets, Strategic Arms Reduction Talks (START) progress, and the Strategic Defense Initiative (SDI) program are evaluated as they affect the original Small ICBM decision. The conclusion is reached that the rail garrison Peacekeeper satisfies most of the originally intended roles for the Small ICBM, at significantly less cost. But continuing development, with a slower paced production and deployment schedule is needed as a hedge on arms reductions beyond START, SDI capabilities, and future vulnerability of U.S. SLBMS.

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TITLE: (U) Beyond the Illusion of Symmetry: How to Think About Arms Control.

SPONSOR: DOD

PERFORMING ORGANIZATION: AIR WAR COLLEGE

MAY-88

ABSTRACT:

(U) Examines the historical divergence in US and Soviet approaches to nuclear arms control and its implications for future nuclear force reduction agreements. The study questions arms control 'illusion of symmetry' and its simplistic assumptions about each side's motivations and objective for arms control. The study outlines the changes context for arms control, identifies the traditional goals of arms control, measures both sides arms control 'behavior' against those goals, interprets some of the criticisms of arms control in light of this analysis and offers some suggested improvements for future arms control efforts. The author concludes that US arms control efforts are unnecessarily constrained by an illusion of symmetry. As a result, US arms negotiations planners and strategists are likely missing some excellent opportunities for reducing arms while improving US national security. He recommends moving beyond the 'illusion of symmetry' to a broad and integrated national strategy of arms control initiatives.

TITLE: (U) Report of the Defense Science Board Task Force Subgroup on Strategic Air Defense (SDI Milestone Panel).

SPONSOR: DOD

PERFORMING ORGANIZATION: DEFENSE SCIENCE BOARD

MAY-88

ABSTRACT:

(U) Conclusions of the Defense Science Board's strategic defense milestone panel include: 1) in view of the technical, budgetary, political, and arms control uncertainties surrounding the ballistic missile defense program, the panel recommends planning a number of steps in the technical development and deployment of a system to meet the JCS requirements rather than a single major action. 2) from a development point of view, priority should be given to the sensors, processing and communications necessary to provide an adequate assessment of what is actually going on, the nature and extent of the attack, and the detection and tracking of boosters and reentry vehicles. This framework is needed whatever weapons are actually used, and the research, development, and experimentation required to provide it involves most of the critical technologies. This surveillance system should evolve as the supporting technology becomes available, allowing the inclusion of whatever weapons are available and wanted. This restructuring would help assure priority attention to critical technical problems despite budget uncertainties and 3) deployment should be in steps, each of which should provide some capability and have some value in itself.

UNCLASSIFIED

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TITLE: (U) A Tank-free Zone for NATO's Central Region.

SPONSOR: DOD

PERFORMING ORGANIZATION: ARMY COMMAND AND STAFF COLLEGE

MAY-88

ABSTRACT:

(U) This document examines the concept of a mutual tank-free zone for the European central region and tests its validity as a possible operational concept for NATO. The it assesses the military implications of the concept and its usefulness as a mechanism of applying military means to achieve political ends. NATO leaders are looking for ways to strengthen deterrence and conventional defense at relatively low economic and political costs to their governments. The tank-free zone concept may be recommended as a serious proposal for future arms control talks as a method to reconfigure and realign conventional force asymmetries. The discussion begins with a contemporary perspective of the current NATO defensive capability and orientation. The political demands of deterrence are compared with the military requirements for defense. These are contrasted against the essential requirements for strong defense as expressed by Clausewitz and U.S. Army doctrine to identify the weaknesses in the NATO approach. The capability of a tank-free zone to redress these deficiencies constitutes the analysis.

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TITLE: (U) The Intermediate-Range Nuclear Forces (INF) Treaty:
An Operational Error.

SPONSOR: DOD

PERFORMING ORGANIZATION: ARMY COMMAND AND STAFF COLLEGE

MAY-88

ABSTRACT:

(U) The purpose of this paper is to examine the operational impact of the INF Treaty and what it means for the future of NATO. At this writing, there is considerable debate going on as to whether or not the US congress should ratify the INF Treaty. The political issues are well known and under careful examination. A critical element which still needs to be addressed is the operational impact of the INF Treaty. This area may have been neglected because nuclear weapons are viewed primarily as an element of deterrence. Therefore, their warfighting potential is given only minimal consideration. This paper begins with a discussion of the historical use of nuclear weapons in NATO's defensive alliance. It follows through to the decision in 1979 to modernize NATO's nuclear force. This decision resulted in the deployment of the Pershing II and Ground Launched Cruise Missile (GLCM) systems in Europe. The Soviet warfighting concept for Europe is addressed next to place the Intermediate-range Nuclear Forces in their proper perspective. This is followed by a discussion on the operational implications of the INF Treaty. The paper concludes by briefly mentioning a few of the 'defensive' proposals for the post-INF period.

UNCLASSIFIED

page 24

TITLE: (U) Detente Phase 2: An Opportunity for U.S.,
Or Another Soviet Set-up?

SPONSOR: DOD

PERFORMING ORGANIZATION: NAVAL WAR COLLEGE

MAY-88

ABSTRACT:

(U) In 1981, newly elected President Ronald Reagan, publically denounced the Soviet Union as an evil empire. In 1983, a Soviet arms negotiating team walked out of an arms limitation session with the U.S. due to lack of progress. Four years later, the two superpower leaders signed an arms reduction treaty designed to eliminate two entire classes of nuclear weapons. This paper investigates the turn of events that brought the Soviets back to the bargaining table and why the U.S. was willing to receive them. A review will be conducted into the history of U.S.-Soviet relations since World War II; the political, economic and military reforms that have occurred since Mikhail Gorbachev came to power; and a Pro and Con analysis of the new warning trend. Three conclusions are arrived at in dealing with the Soviets this time around: First, the U.S. needs to broaden economic trade policies; second, continue arms control negotiations, being cautious to maintain the strategic balance; and lastly, continue to foster good relations with the present alliance system, including China.

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TITLE: (U) The Soviet Trend Toward Conventional Warfare and the
Soviet Navy: Still No Anti-SLOC (Sea line of Communication)?

SPONSOR: DOD

PERFORMING ORGANIZATION: NAVAL POSTGRADUATE SCHOOL

JUN-88

ABSTRACT:

(U) This thesis uses the structure of Soviet Military doctrine and strategy to arrive at the hypothesis that the Soviet Navy would make a full-scale effort to interdict Sea Lines Of Communication (SLOCs) in a conventional war. The Soviet open literature is examined to test this hypothesis; that examination reveals no evidence of such a mission. An explanatory hypothesis then is tested, that U.S. deployment of the Tomahawk Cruise Missile presented a new threat for the Soviets to deal with, thereby preventing a significant release of forces for anti-SLOC warfare. This hypothesis also must be rejected; it is concluded that the main declaratory mission of the Soviet Navy in conventional war consists of providing SSBN security. The mismatch between declaratory doctrine and strategy may indicate a shortfall in the Navy's perceived capabilities, which could partially be redressed by future arms control agreements.

UNCLASSIFIED

page 25

TITLE: (U) Scenarios of Nuclear Escalation Dominance and Vulnerability.

SPONSOR: DOD

PERFORMING ORGANIZATION: NAVAL POSTGRADUATE SCHOOL

JUN-88

ABSTRACT:

(U) This document examines the role of strategic missile - carrying submarines in deterrence and mission of attacking these forces during the conventional phase of a war. Strategies considered include wars originating in varying regions. Included is a discussion of varying locations for submarine deployments impacting on potential antisubmarine warfare campaign. Escalation considerations include vertical, horizontal, and time. It concludes with analysis of possible arms control regulations.

TITLE: (U) How Ya' Gonna' Keep Ivan Out Of Bremen After the GLCMs (Ground Launched Cruise Missiles) are Gone.

SPONSOR: DOD

PERFORMING ORGANIZATION: NAVAL WAR COLLEGE

JUN-88

ABSTRACT:

(U) The Intermediate Range Nuclear Force (INF) Treaty will reduce the deterrence of NATO's triad of forces. Removal of Ground Launched Cruise Missile (GLCM) and Pershing II missiles leaves few options for flexible response between Allied conventional forces and US strategic forces. The risk of Soviet aggression increases. This paper analyzes options to restore deterrence in NATO's Central Region. It is vital to counter Soviet strategy for preemptive, nonnuclear, Blitzkrieg offensive and the Soviet ideological imperative for continuous political and strategic rivalry with the West. US and NATO Alliance options reviewed include: changed objectives, accepting increased risk, changed strategy, more very short-range, legal, tactical nuclear weapons, more cruise missiles, arms negotiations and more conventional forces. It is concluded that only increased conventional forces will restore deterrence. The paper recommends the European NATO Allies provide more army division, modernize forces and build prepared defenses. The US should formalize a conventional defense initiative to: modernize forces, fix sustainability and fund more forces. Also, European troop ceilings must be removed to allow the best mix of conventional and nuclear forces.

UNCLASSIFIED

page 26

TITLE: (U) How to think about Conventional Arms Control:
A Framework. Volume 1.

SPONSOR: DOD
PERFORMING ORGANIZATION: ARMY WAR COLLEGE

JUN-88

ABSTRACT:

(U) A new Atlantic To The Urals (ATTU) conventional arms control forum, currently known as Conventional Stability Talks (CST) will be replacing the Mutual and Balanced Force Reduction (MBFR) talks. This study examines the background of conventional arms control; establishes principles for how to think about Conventional Arms Control (CAC); discusses 21 major issues in CAC to include the positions of the relevant actors on each issue; describes a framework of seven core criteria to be used in USG position development and proposal and counterproposal evaluation analysis; projects probable outcomes of the CST process; and presents possible users for returning force structure in preparing for the post-CAC environment.

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TITLE: (U) How to think about Conventional Arms Control:
A Framework. Question and Answer Book.

SPONSOR: DOD
PERFORMING ORGANIZATION: ARMY WAR COLLEGE

JUN-88

ABSTRACT:

(U) A new Atlantic To The Urals' (ATTU) conventional arms control forum, currently known as Conventional Stability Talks (CST) will be replacing the Mutual and Balanced Force Reduction (MBFR) talks. The purpose of this publication is to provide quick, relevant answers to difficult questions for use by U.S. Army personnel who may not be directly involved in the CAC processes.

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page 27

TITLE: (U) How To Think About Conventional Arms Control:
A Framework. Volume 2.

SPONSOR: DOD

PERFORMING ORGANIZATION: ARMY WAR COLLEGE

JUL-88

ABSTRACT:

(U) A new conventional arms control forum currently known as Conventional Stability Talks (CST) will soon replace the Mutual and Balanced Force Reduction (MBFR) talks in Europe. This Volume II is a classified supplement to Volume I of the title study which provides a brief assessment of the positions of a number of European nations and the Soviet Union on 21 issues relating to conventional arms control in the CST. The assessments were conducted by the study team with the cooperation of analysis from the U.S. intelligence community, using the policon methodology now available at the U.S. Army Concepts Analysis Agency. The methodology was employed to reach conclusions concerning the feasibility and likelihood of attaining a favorable CAC agreement in CST, based on the East-West negotiability of each issue and a final comparison of agreements and disagreements.

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TITLE: (U) The New Soviet Military Doctrine and the Future
of the Maritime Strategy.

SPONSOR: DOD

PERFORMING ORGANIZATION: NAVAL POSTGRADUATE SCHOOL

SEP-88

ABSTRACT:

(U) This thesis examines the continued applicability of the bastion concept as a basic assumption of the maritime strategy with respect to the new Soviet military doctrine. The methodology employed involves an examination of Soviet literature, naval hardware, and exercise/operating patterns to determine if there has been a shift in the Soviet emphasis upon protecting the SSBN force. The results show that even though the Soviets have made certain changes in the political aspects of their military doctrine, they will most likely continue to emphasize the protection of the SSBN as the primary mission of the Soviet navy in the event of a war. In fact, as the numbers of strategic nuclear warheads are reduced by future arms control proposals, such as START, the Soviets will probably consider the protection of the SSBN force to be more important than in the past. Theses.

UNCLASSIFIED

page 28

TITLE: (U) Soviet Naval Arms Control Proposals for the Mediterranean: Implications for U.S. Security Interests.

SPONSOR: DOD

PERFORMING ORGANIZATION: NAVAL POSTGRADUATE SCHOOL

DEC-88

ABSTRACT:

(U) This thesis examines the implications for U.S. and Allied security interests of the arms control proposals advanced by General Secretary Gorbachev during a speech in Belgrade, Yugoslavia, in March 1988 concerning U.S. and Soviet Naval Forces in the Mediterranean region. The thesis includes background on the relevant geographic, political economic, and cultural characteristics of the Mediterranean region and an overview of the countries of the region and their naval forces. The thesis also discusses the objectives of the U.S. and the Soviet Union in the Mediterranean, the role each country's navy plays in advancing those objectives and the difficulties both countries encounter in maintaining a naval presence in the region. Finally, the thesis analyzes the implications of the March 1988 Soviet proposals. The thesis concludes that these Soviet proposals do not appear promising as the basis of negotiations to improve U.S. - Soviet relations on a realistic and reciprocal basis, partly because implementing the proposals would compromise U.S. and Allied security interests in the region. Theses.

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TITLE: (U) Glasnost in the Navy? Naval Confidence-Building Measures.

SPONSOR: DOD

PERFORMING ORGANIZATION: NAVAL POSTGRADUATE SCHOOL

DEC-88

ABSTRACT:

(U) This thesis analyzes recently proposed naval Confidence Building Measures (CBMS) as presented in various forms by the Soviet Union. These proposals, if accepted, will impact the readiness levels of the U.S. Navy in fundamental ways. While some of the proposals might be acceptable to the United States' national interest, some are clearly not. Beginning with definitions, purposes, and a history of CBMS, this thesis next analyzes the effects of the proposed CBMS on the Navy and closes with recommendations and counter-proposals. As arms control measures continue to gain importance in the political sector, policy makers need a wide range of options. This thesis focuses on analyzing impacts and providing these options. Theses.

UNCLASSIFIED

page 29

TITLE: (U) Defense Nuclear Agency Fiscal Year 1990/91 Program
Document: Research, Development, Test and Evaluation.

SPONSOR: DOD

PERFORMING ORGANIZATION: LAKE CITY ARMY AMMUNITION PLNT

DEC-88

ABSTRACT:

(U) This research and development program explores and develops technology to improve the nuclear survivability and effectiveness of U.S. strategic and nonstrategic weapons systems and forces, and the command control and communications systems needed to operate those systems and forces in a nuclear conflict. This program is particularly responsive to the new environments of arms limitation and fiscal constraint by providing technology to create extremely reliable military systems, thereby maintaining a credible nuclear posture necessary to deter conflict. Research efforts encompass: nuclear weapons effects; underground nuclear tests; nuclear hardening; radiation simulators; nuclear detonation effects; biomedical effects survivability.

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TITLE: (U) West European Arms Control Policy.

SPONSOR: DOD

PERFORMING ORGANIZATION: INSTITUTE FOR DEFENSE ANALYSES

JAN-88

ABSTRACT:

(U) The main focus of this project has been upon the executive decision making systems in four major European countries, namely the United Kingdom, France, West Germany, and Italy. The focus on arms control decision making in western Europe necessitated conducting extensive interviews with a wide range of West European Government and opinion elites. Virtually all of the major West European political and administrative officials in the arms control area have been interviewed at least once and some have been interviewed several times.

UNCLASSIFIED

page 30

TITLE: (U) Combining Arms Control Limits On Warheads and Throwweight:
the Effects on U.S. and Soviet Strategic Forces.

SPONSOR: DOD

PERFORMING ORGANIZATION: INSTITUTE FOR DEFENSE ANALYSES

FEB-88

ABSTRACT:

(U) This analysis has shown that an arms control agreement limiting the number of warheads and the amount of throwweight permitted on the countries' ballistic missiles, would reduce the destructive capacity of the Soviet Union's ballistic missile forces. However, it might not encourage the Soviet Union to reduce its reliance on heavy ICBMs if the Soviet Union decided to reduce the number of launchers in its arsenal. Changing the value of the limits on warheads and throwweight might change the mix of large and small MIRVed missiles in the Soviet arsenal, but it would not encourage the Soviet Union to deploy its warheads on a large number of launchers. An additional limit on heavy ICBMs would obviously restrain the deployment of these missiles, but it might actually encourage the Soviet Union to develop a new single warhead heavy ICBM. However, without mandating the number of heavy ICBMs permitted in the Soviet Union's arsenal, an agreement that combined a limit on average volume with the limits on warheads and throwweight would both encourage the Soviet Union to deploy a greater number of launchers and force the Soviet Union to deploy a balanced mix of large and small missiles. This combination of limits would both restrain the destructive capacity of the Soviet Union's ballistic missiles and encourage the Soviet Union to reduce its reliance on heavy ICBMs.

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TITLE: (U) Test Limitations and the Soviet Nuclear Test Program

SPONSOR: DOD

PERFORMING ORGANIZATION: PACIFIC-SIERRA RESEARCH CORP

MAR-88

ABSTRACT:

(U) The Soviet Union strongly advocates a ban on nuclear weapon test explosions and declares its willingness to stop the testing it resumed in February 1987 after an 18-month declaratory moratorium. The United States argues that test limitations must be linked to the level of nuclear forces because nuclear testing will be required as long as we have a strategy of nuclear deterrence. An abundance of classified and unclassified articles and reports on the test ban issue explain why there would be such a severely adverse impact on the United States. Very few have addressed the Soviet side of the issue in any detail. This report is designed to shed some light on the questions of why the Soviet Union declares that it can afford to discontinue nuclear explosions regardless of the degree of success in other arms limitations talks, while the United States argues that it cannot.

UNCLASSIFIED

page 31

TITLE: (U) Strategic Defense Initiative (SDI) System Architecture
and Key Tradeoff Studies. Phase 2C.
Operations Concept (B003). Appendix B.

SPONSOR: DOD

PERFORMING ORGANIZATION: ROCKWELL INTERNATIONAL

MAR-88

ABSTRACT:

(U) This appendix sets forth the operational characterization for the government furnished information (GFI) December 1987 baseline concept definition (BCD) architecture. Covered herein are the purpose, goals, missions and mission requirements and operational characterization for a strategic defense system (SDS). The BM/C3 architecture presented is generic and every attempt was made to insure the architecture remained generic and did not fall into the trap of defining a BM/C3 concept to fit over an already designed hardware system. The architecture defined in this document is open, one capable of growing along with the phased development of the strategic defense system. The purpose and goals of the strategic defense system are to provide a strategic defensive system capable of implementing the policies and goals of the United States, specifically to defend the United States and its allies against ballistic missile attack through enhanced deterrence and if deterrence fails, by physical negation of hostile ballistic missiles.

UNCLASSIFIED

page 32

TITLE: (U) Recommendations for Future Army Analysis Efforts.
Volume 2. Priorities and Key Questions for Critical Policy
Conventional Capability and Interoperability.

SPONSOR: DOD

PERFORMING ORGANIZATION: NEW PERSPECTIVES CORP

APR-88

ABSTRACT:

(U) During 1987 the list of priority issues was updated through input from several sources, including inputs from the chief of staff and the CINCS, plus a number of comments from a recent senior Army Commanders' Conference. Five broad policy issues, currently of major importance, were identified and defined as follows: 1) conventional capability: enhancing conventional force structure in light of INF and/or conventional arms control, including doctrine for balancing the requirements of low intensity conflict with other needs; 2) interoperability: providing effective deterrence and warfighting capability in operations that include the other services and forces of our allies in various theaters; 3) sustainability: measuring the ability to sustain combat forces in various theaters and levels of conflict and advising commanders of the implications of alternative operations; 4) explaining the Army: explaining the Army's contribution to national defense to a variety of audiences; and 5) supporting the soldier: providing appropriate facilities, support services and financial compensation to the soldier and his/her family to address their physical, mental and economic needs and, thus, maintain a loyal, motivated force. The central purpose of the activity described in this report was to help establish guidelines for future analysis efforts.

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TITLE: (U) Report on the FY 1987 Activities of the Defense Science Study Group. Volume 1.

SPONSOR: DOD

PERFORMING ORGANIZATION: INSTITUTE FOR DEFENSE ANALYSES

MAY-88

ABSTRACT:

(U) The principal objective of the Defense Science Study Group (DSSG) is to reestablish and strengthen links between the Department of Defense and the scientific and engineering communities by fostering an interest among some of the country's most promising young scientists in some of the most important technical issues related to national security. Volume I of this report on the FY 1987 activities of the DSSG contains a description of the DSSG program and a summary of its second year of activity. Volume II contains a summary of preliminary presentations given at the final review session.

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page 33

TITLE: (U) Report on the FY 1987 Activities of the Defense Science Study Group. Volume 2. Summary of Presentations by Members at Review Sessions.

SPONSOR: DOD

PERFORMING ORGANIZATION: INSTITUTE FOR DEFENSE ANALYSES

MAY-88

ABSTRACT:

- (U) The principal objective of the Defense Science Study Group (DSSG) is to reestablish and strengthen links between the Department of Defense and the scientific and engineering communities by fostering an interest among some of the country's most promising young scientists in some of the most important technical issues related to national security. Volume I of this report on the FY 1987 activities of the DSSG contains a description of the DSSG program and a summary of its second year of activity. Volume II contains a summary of preliminary presentations given at the final review session.

TITLE: (U) Logistics Implications of Maneuver Warfare.
Volume 4. Arms Control.

SPONSOR: DOD

PERFORMING ORGANIZATION: LOGISTICS MANAGEMENT INST

SEP-88

ABSTRACT:

- (U) As part of its FY87 independent research and development program, the Logistics Management Institute (LMI) examined the logistics implications of a new maneuver-oriented operational concept - Airland Battle - being adopted by the U.S. Army. LMI undertook this study for three reasons. First, even though more than 5 years have passed since airland battle was promulgated as formal Army doctrine, misperceptions and uncertainties about its execution still exist. Second, neither the Army nor the Defense Community has yet developed a good understanding of the implications and ramifications of Airland Battle. Third, and most important, the combat service support requirements, which largely determine the extent to which Airland Battle doctrine can be executed, are not well defined or understood. The results of this study are presented in six volumes. This volume summarizes the various arms control negotiations that have taken place between East and West to solve NATO's security problem peacefully; Volume 5 illustrates the need for NATO to shift toward a maneuver-oriented defense concept, analogous to Airland Battle doctrine, if it is to maintain a credible conventional defense; and Volume 6 details the specific logistics improvements that are required to support maneuver defense in a NATO environment. The material in these volumes is interrelated so the reader is cautioned not to interpret individual volumes as stand-alone documents.

UNCLASSIFIED

page 34

TITLE: (U) Impact of a Comprehensive Test-Ban Treaty On
Weapons-Effects Testing.

SPONSOR: DOD

PERFORMING ORGANIZATION: MITRE CORP

NOV-88

ABSTRACT:

(U) This report discusses the impact of possible nuclear test-bans on the testing of defense systems and components. The status of x-ray generation technology is reviewed and recommendations are made for further technology development.

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TITLE: (U) Hardware for Potential Unattended Surveillance and
Monitoring Applications

SPONSOR: DOE

PERFORMING ORGANIZATION: SANDIA NATIONAL LABORATORY

JAN-88

ABSTRACT:

(U) This paper discusses equipment which may have potential application in the verification of treaties where on-site unattended surveillance and monitoring activities are appropriate. The unattended nature of this equipment, although not negating the need for on-site inspection, is consistent with the approach used by the International Atomic Energy Agency (IAEA) in the verification of the Nuclear Non-Proliferation Treaty. To use unattended equipment, the features that need to be included in the design address the credibility of the information provided, i.e., the equipment contains tamper indicating features. Three different types of equipment are discussed: optical surveillance equipment, seals, and process monitors. The first two have direct application in the IAEA Safeguards approaches; the latter have been developed to provide a technology base of sensor suites for potential application in the monitoring of a Chemical Weapons Ban Treaty.

UNCLASSIFIED

page 35

TITLE: (U) Acquiring a Two-Dimensional Strength of Material Code
in Group P-15. Document # - P 15 89.

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

JAN-88

ABSTRACT:

(U) This paper outlines the characteristics of required computer codes for extending ground wave motion analyses into later time regimes where material strength becomes important. Lagrangian codes as well as existing Eulerian codes are discussed as candidates for linkage with codes now being used in the earlier time regime.

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TITLE: (U) Proceedings of the Array Signal Processing Symposium.
Document # - CONF 8707152.

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATIONAL LAB

FEB-88

ABSTRACT:

(U) The Departments of Energy and Defense support array research in many detection, location and imaging applications for a diverse set of reasons. Although the applications may have widely disparate motivations, their underlying physics and signal processing mathematics are broadly similar. The groups conducting array research in these applications often work in isolation, due to physical or departmental separation, the constraints of classification, or the mere fact of working in different scientific or engineering disciplines. This symposium was motivated by a desire to use research resources more effectively. It was intended to promote an exchange of ideas, and to establish contacts among several groups engaged in array research in the national laboratories and private industry.

UNCLASSIFIED

page 36

TITLE: (U) Apples, Oranges, and the Problem of Exploitable Systematic Error, an Overview.
Document # - LA 1141 MS.

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

MAR-88

ABSTRACT:

(U) Seismic coupling of nuclear tests is known to vary substantially from one location to another. This paper explores the differences between well-coupled explosions (APPLEs) and loosely-coupled ones (ORANGEs) at the Nevada Test Site, and suggests how the results may be applicable to resolving the problem of exploitable systematic error in test yield limitation.

=====

TITLE: (U) The Effective Yield of a Nuclear Explosion in a Small Cavity in Geologic Material: Enhanced Coupling Revisited.
Document # - LA-UR 87 2796.

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

MAR-88

ABSTRACT:

(U) This paper analyzes the problem of seismic decoupling via detonation in cavities. Earlier studies had incorrectly shown a surprising phenomenon of enhanced coupling in small cavities. Correct incorporation of thermal radiation terms eliminates this result. Graphs present the magnitude of coupling vs cavity radius for various media.

UNCLASSIFIED

page 37

TITLE: (U) Bearing Estimation Studies with the LLNL Seismic Array.
Document # - UCID 21345.

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATIONAL LAB

MAR-88

ABSTRACT:

- (U) The dependence of array bearing estimates on such parameters as phase type and event size were studied using 24 events from one particular quarry located 150 km from a small-aperture array in southeastern Kansas. The bias and variance in a region known to be geophysically similar to the Russian platform were assessed. It was concluded that:
1. Bias is largely unaffected by source parameters, and therefore is probably principally controlled by path effects. For P waves, a small variation of bias with shot size may exist.
 2. Variance appears not to decrease with increasing shot size, and may actually increase.
 3. Among P, S, and Rg phases, the Rg phase exhibits the smallest bias and variance.
 4. High-frequency fundamental and higher-order Rayleigh modes exhibit different biases, suggesting frequency-dependent lateral refraction along the propagation path.
 5. Relative excitation of fundamental and first higher Rayleigh modes may be controlled by topographical features.

UNCLASSIFIED

page 38

TITLE: (U) Phase Velocity Estimation of Diffusely Scattered Waves.
Document # - UCRL 98593.

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATIONAL LAB

APR-88

ABSTRACT:

(U) Two methods are investigated for estimating the phase velocity of diffusely scattered seismic waves simultaneously arriving from different azimuths and recorded by a two-dimensional array of seismometers. The Hankel spectrum is the average of the frequency-wavenumber (FK) spectrum over all azimuths, while the wavenumber spectrum is derived by integrating the FK spectrum around a contour of constant phase velocity, i.e., a circle centered on the origin in the wavenumber plane. The Hankel spectrum estimates too high a velocity; for true wavenumbers below a certain limit infinite velocity is estimated. The wavenumber spectrum, on the other hand, estimates too low a velocity, and there is an upper limit on the estimated velocity. An example illustrating these difficulties for the two methods is given for teleseismic P coda of an event recorded at the NORESS array in southern Norway: in spite of the problems, the analysis is able to demonstrate that the coda consists of two components, a coherent P wave component with a high phase velocity and a diffuse S wave component of low phase velocity. The results confirm and quantify the cutoff problem at low wavenumbers and indicate that wavenumbers estimated from the Hankel and wavenumber spectra maxima bracket the true wavenumber, with the Hankel spectrum estimate being low (phase velocity too high) and the wavenumber spectrum estimate high. The bias of both methods decreases with increasing wavenumber (decreasing phase velocity) and they are both asymptotically unbiased.

=====

TITLE: (U) Calibration of a Teleseismic Monitoring System.
Document # - LA-UR 88 4182.

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

APR-88

ABSTRACT:

(U) Recent publicity regarding the Threshold Test Ban Treaty (TTBT) has touted teleseismic monitoring as the solution to the TTBT verification problem. Calibration of such a monitoring system is reviewed, with specific attention given to the limited value of a small number of nuclear tests conducted for calibration purposes.

UNCLASSIFIED

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TITLE: (U) Technical Points Relevant to the Test Range in Space Concept.

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

APR-88

ABSTRACT:

(U) Investigations of possible military space activities have led some to the concept of a "test range" in space: a set of orbits whose parameters would be limited by considerations such as overflights and military threat, so as to make those orbits useful for military tests. This paper points out some important factors in orbital mechanics, military utility, and environmental impact that must be considered.

=====

TITLE: (U) Concerning "Normalization" Explosions.

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

MAY-88

ABSTRACT:

(U) We consider the application of teleseismic data from two closely spaced NTS events to the normalization explosion concept for verification of underground nuclear tests conducted in non-standard geometry. The fact that these two events were located close together and in essentially geophysically identical media means that the results provide useful information concerning the extent to which a normalization explosion can be of value in the verification process.

UNCLASSIFIED

page 40

TITLE: (U) Nuclear Testing Limitations: A Historical Review.

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

MAY-88

ABSTRACT:

(U) Efforts to control nuclear weapons since WW II have resulted in a number of treaty proposals to limit tests of nuclear devices. This article provides a summary of those efforts, emphasizing in particular their impact on the need for effective means to verify compliance.

=====

TITLE: (U) Nuclear Weapon-Free Zones

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATIONAL LAB

JUN-88

ABSTRACT:

(U) This report presents an overview of actions and proposals with respect to nuclear weapon-free zones including important potential impacts on national security and arms control. In this two-part document, the first part is devoted to a review and evaluation of the numerous existing agreements and of similar zones under consideration, with the actual texts of the existing agreements reproduced as appendices. The second part is a discussion and analysis which examines current activities, proposals and trends which seem to be developing in terms of their geographic, military, and political implications with special attention being given to nuclear weapon issues in NATO and related arms control actions.

UNCLASSIFIED

page 41

TITLE: (U) Crustal Structure in Eastern Kazakh, U.S.S.R. From
Teleseismic Receiver Functions.

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATIONAL LAB

JUN-88

ABSTRACT:

(U) Broadband receiver functions determined from teleseismic P-waveforms recorded at two seismic stations in eastern Kazakh, U.S.S.R., are inverted for the vertical velocity structure beneath the stations. The detailed broadband receiver functions are obtained by stacking source-equalized radial components of teleseismic P-waveforms. A time-domain inversion of the radial receiver function is used to determine the structure assuming a crustal model parameterized by flat-lying, homogeneous layers. The general features of the inversion results are: a complex shallow crust, velocities less than 6 km/s in the upper crust, a high velocity (6.9-7.5 km/s) lower crust, and a Moho that varies between 47 and 57 km depth. These results compare favorably with a composite velocity model from Deep Seismic Sounding data, but show lower velocities in the upper crust, and higher velocities in the lower crust. The results indicated that the crust in this region is relatively uniform, however the nature and depth of the Moho changes significantly across the region. The receiver function inversion structure for the Kazakh sites is similar to a published receiver function structure for a site on the Canadian Shield.

=====

TITLE: (U) Analysis Methodology for Hydrodynamic Yield Verification.

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

JUN-88

ABSTRACT:

(U) This report presents a detailed description of the methods used to analyze measurements of hydrodynamic shock position vs time data for the purpose of determining the yield of underground nuclear explosions.

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TITLE: (U) Medicine Lake Volcano Teleseismic Experiment Field Procedures and Data Analysis. Document # - UCRL 21470.

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATIONAL LAB

JUL-88

ABSTRACT:

(U) We conducted a teleseismic recording experiment at Medicine Lake volcano (MLV), a shield volcano on the eastern edge of the Cascade Range in northern California. The major objective of the deployment was to test the feasibility of using portable instrumentation for a teleseismic receiver function study. A portable tripartite array of 3-component mid-period seismographs with approximately 20 km spacing were deployed on the eastern flank of MLV from September 18 to October 2, 1985. Seven teleseisms were recorded by one or more stations during the 15-day deployment.

Comparison of a single teleseism recorded at all three stations shows good correlation among the vertical components, less correlation among the radial components, and virtually no correlation among the tangential components. This observation is consistent with the idea that the vertical component is dominated by source and distant path effects, while the radial is dominated by near receiver effects. Explanation of the transverse component is still uncertain. By stacking the respective components and then removing the source effects by deconvolution, we obtained an average "receiver function" for the crustal structure beneath the array.

By comparing the average receiver function with synthetic receiver functions we were able to discriminate between two different velocity models of the area determined by an earlier refraction survey study.

Our data favor the refraction study model with a mid-crustal low velocity zone underlain by a high velocity (about 7 km/s) lower crust as opposed to the model with the thin crust. Some initial inverse modeling indicates a crustal thickness greater than 36 km.

The most important result from this small experiment is the confirmation of the concept of portable teleseismic waveform recording. Using off-the-shelf equipment deployed for a relatively short duration, a small field group obtained sufficient teleseismic data for a preliminary deconvolution and inversion study. We feel our results are encouraging and justify a more extended effort to explore the full potential of this technique in the study of the continental lithosphere.

UNCLASSIFIED

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TITLE: (U) The Conduct of On-Site Inspections: Lessons Learned from Inspections and Practice Inspections.

SPONSOR: DOE

PERFORMING ORGANIZATION: SANDIA NATIONAL LABORATORY

JUL-88

ABSTRACT:

(U) This report is a review of the results on-site inspections held under the auspices of other agencies in preparation for the implementation of the INF Treaty. In particular, IAEA and CDE conducted exercises related to on-site inspections which are examined and analyzed in preparation for the INF treaty.

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TITLE: (U) Decision Framework for Evaluating Compliance with the Threshold Test Ban Treaty. Document # - UCRL 53830.

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATIONAL LAB

AUG-88

ABSTRACT:

(U) We have developed a decision framework for evaluating Soviet compliance with the 150-kt limit on the nuclear tests, as specified by the Threshold Test Ban Treaty. The framework is designed to help interpret available evidence of possible violations and respond appropriately to that evidence. The "evidence" consists of estimates of the yield of Soviet tests.

Interpreting and responding to evidence of possible violations requires a series of technical determinations and policy judgments. The decision maker may wish to consider: the degree of uncertainty in the monitoring data; potential Soviet violation scenarios and their significance; the probability of Soviet violations; the relative values of correct or incorrect responses; and the role of U. S. responses to evidence in deterring future violations. The decision framework provides methods for incorporating explicitly each of these factors when interpreting and responding to evidence.

The framework is best viewed as an aid to decision making. The intent, of course, is not to replace the policy maker with an analytic process. Rather, the framework provides a systematic method for organizing and incorporating diverse inputs, exploring the implications of alternative technical and value judgments, and understanding complex trade-offs. By exercising the framework, technical analysts and policy makers can build new insights, which ultimately can lead to better compliance evaluation decisions.

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TITLE: (U) High-Frequency Seismic Observations and Models of Chemical Explosions: Implications for the Discrimination of Ripple-Fired Mining Blasts.

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATIONAL LAB

AUG-88

ABSTRACT:

(U) Discrimination of large chemical explosions (e.g., mining blasts) from possible clandestine nuclear tests (e.g., decoupled-explosions) is a significant issue for seismic verification. Unless discrimination is possible, the numerous mining blasts within the USSR would give ample opportunity for concealing a clandestine test. Evernden et al (1986) advocate high frequencies as a means to detect these clandestine tests; however, mining blasts must still give a unique signature for their discrimination. Specific conditions are also necessary for high-frequency verification: low attenuation and quiet seismic stations are among the most important.

During the summer of 1985, LLNL deployed a regional array and high frequency seismic station near RSON (Red Lake, Ontario, Canada) to study regional seismic signals at a low-noise site with excellent propagation characteristics, the continental shield. One objective was to evaluate the performance of regional seismic arrays and high-frequency stations in this geological environment. Using high-frequency data from mining blasts within the Masabi Iron Range in northern Minnesota (distance of 380 km), we also observed the high-frequency Pn phase of ripple-fired blasts, modelled their source properties, and evaluated a possible discriminant for chemical explosions.

This study suggests the existence of a distinctive signature for large chemical explosions; strong, high-frequency spectral peaks in the P spectra introduced by delay shooting or ripple-firing. Its application depends, however, on a frequency band extending to at least 35 Hz at regional distances, reasonably uniform delay times in the blast pattern, predictably quiet seismic sites, and minimal path attenuation for high frequencies. At 380 km, we observe good propagation to 30 Hz; at 50 Hz the evidence suggest severe attenuation or scattering which is consistent with a total Q between 1500 and 2500. Attenuation estimates assuming a simple source behavior (e.g. f^{-2} or f^{-3}) at high frequencies for mining explosions would give incorrect values of Q unless corrected for the blast pattern. These attenuations will limit the value of high-frequencies for the detection of small decoupled explosions at regional distances.

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TITLE: (U) Seismic Models of Asian Explosions Recorded at NORESS.
Document # - SAND88-2155.

SPONSOR: DOE

PERFORMING ORGANIZATION: SANDIA NATIONAL LABORATORY

SEP-88

ABSTRACT:

(U) NORESS recordings of presumed explosions in the Soviet Union provide spectral estimates of teleseismic attenuation along three paths from Asia to southern Norway. Two of the spectra require that attenuation varies with frequency, while the third is consistent with a constant path Q. Curve fitting using the Simplex algorithm is used to objectively determine model parameters that best fit the three data curves for five different attenuation model formulations. The derived model parameters are useful input information for computer codes designed to calculate signal detectability for hypothetical seismic networks, as are used for feasibility studies of seismic verification of a test ban treaty.

=====

TITLE: (U) The Effects of Spall on Regional Seismograms.
Document # - UCRL 99524.

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATIONAL LAB

SEP-88

ABSTRACT:

(U) The effects of spall on regional signals are investigated using synthetic seismograms to frequencies of 20 Hz. Depending on the scaling relationships used, it is found that spall may have an important effect on regional body waves and especially surface waves. The frequency range in which the spall effect dominates is dependent upon the characteristic times of the spallation process, but generally occurs in the frequency range of about 0.2 to 2 Hz. Because of the peaked nature of the radiated spall spectra, effects at frequencies outside the 0.2 to 2 Hz frequency range will be dominated by the explosion source. The frequency range and strength of the spall effect depend in a complicated manner upon yield, depth of burial, near-source structure, and material strength. Uncertainties in the spall scaling relationships need to be better understood before the effects of spall on regional discrimination and yield estimation can be properly quantified.

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TITLE: (U) Application of Nuttli's Method to Estimate Yield of Nevada Test Site Explosions Recorded on Lawrence Livermore National Laboratory's Digital Seismic System.

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATIONAL LAB

OCT-88

ABSTRACT:

(U) Methods utilizing Lg waves for estimating yields of underground nuclear explosions have attracted considerable attention for their accuracy, claims of portability, and suitability for low yield test ban verification. In this study, the method developed by Nuttli is applied to a large dataset of Nevada Test Site explosions recorded on Livermore's Digital Seismic System. The purpose was to check the reproducibility of Nuttli's results and to verify the accuracy of mb(Lg) to estimate yield at high and low yield levels. Portability of the method is examined from the perspective of variability of the magnitude-yield relations as a function of station site and source geology. The results of this study show accuracies of about a factor of 1.6 in yield at the two sigma level for shots below the water table in source regions exhibiting more or less uniform coupling. At Nevada Test Site, there are three such source regions: Pahute Mesa (areas 19 and 20), northern Yucca including areas 2 and 9, and southern Yucca including areas 3, 4, and 7. There is no apparent degradation in accuracies at low yields (1 to 10 kt). Variations in source coupling were observed as a function of shot location and as a function of the medium's gas porosity for shots in tuff. The effect of gas porosity was not observed for shots in alluvium, which have uniformly low coupling compared to shots in tuff. Variations in magnitude-yield relations were observed from station to station, while the four-station network-average magnitudes are more robust and agreed well with Nuttli's magnitude-yield relations. Thus, portability to other test sites should be considered guardedly optimistic, requiring geologic and seismic data related to coupling in each source region and sufficient numbers of stations (four or five) to estimate a robust network magnitude. Taken all together, the findings of his study lend support to this method as a viable means of monitoring a threshold test ban or low-yield threshold test ban.

TITLE: (U) An Annotated On-Site Inspection Readiness Plan (OSIRP) Outline.

SPONSOR: DOE

PERFORMING ORGANIZATION: SANDIA NATIONAL LABORATORY

OCT-88

ABSTRACT:

(U) This report is a brief outline of the Readiness Plan prepared for the DOE managed mock inspection of the Y-12 facility of Oak Ridge. The purpose of the publication is to familiarize the appropriate personnel at other DOE facilities with the extent and type of planning and preparation which will be required to ready a large DOE facility for an on-site inspection of uncleared individuals.

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TITLE: (U) Accommodation of On-site Inspection at DOE Facilities.
ANL/ACTV-88/2.

SPONSOR: DOE

PERFORMING ORGANIZATION: ARGONNE NATIONAL LABORATORY

OCT-88

ABSTRACT:

- (U) The purpose of this study is to help the U. S. Department of Energy (DOE) provide information to negotiators concerning its ability to comply with potential verification provisions, including on-site inspection, of upcoming arms control treaties. In this way, DOE can attempt to forestall difficulties it might otherwise have in accommodating on-site inspection at its facilities, while still fulfilling its obligations to protect the sensitive information and materials in its possession. The work described is preliminary in nature and is meant to identify and scope out major issues. Detailed analysis is not included, nor are all issues that might arise. Contents include:
1. Aspects of Treaties
 2. DOE Security Interests
 3. Potential Difficulties in Accommodating OSI's
 4. Treaty Verification with Minimal Intrusion
 5. Technology for Verification
 6. Recommendations

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TITLE: (U) Non-Proliferation Treaty Review Conference for Arms Control Issues. Document # - PSR Report 1888.

SPONSOR: DOE

PERFORMING ORGANIZATION: PACIFIC-SIERRA RESEARCH CORP

OCT-88

ABSTRACT:

- (U) Twenty two arms control issues significant in the context of the Fourth Review Conference of the Nonproliferation Treaty are identified and analyzed. Issues include nuclear nonproliferation, future of the Nonproliferation Treaty, nuclear arms reduction, nuclear disarmament, nuclear testing issues, nuclear weapon free zones, no first use of nuclear weapons, transit of nuclear weapons, cutoff of fissionable material production, disposition of nuclear material for weapons, nuclear freeze, nuclear winter, the antiballistic missile treaty, Strategic Defense Initiative, advanced technology, nuclear ship propulsion, outer space arms control and other arms control measures.

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TITLE: (U) Regional Discrimination Between NTS Explosions and Western U.S. Earthquakes.

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATIONAL LAB

OCT-88

ABSTRACT:

(U) A number of earthquake/explosion discriminants outlined in Pomeroy et al. (1982) are evaluated in the Western United States. The data consist of 233 NTS explosions and 130 Western United States earthquakes in the magnitude range of 2.5 to 6.5 recorded at four broadband seismic stations operated by Lawrence Livermore National Laboratory (LLNL). The stations surround NTS at distances of about 200 to 400 km. The propagation paths for the earthquakes range from approximately 175 to 1300 km and are confined mainly to the Basin and Range. The discriminants tested include mb - MS, mb - Mh (higher mode magnitude), long period Love and Rayleigh wave energy density and their ratio, relative excitation of short-period SH waves, $Lg/Pg/Lg/Rg/Lg/Sn$ short-period amplitude ratios, spectral ratios in Pn, Pg and Lg, and third moment of frequency.

In general, the long-period discriminates exhibit the best separation between the earthquake and explosion populations. However, a number of uncertainties regarding the lack of a physical understanding of how the spectral discriminants work makes their utilization questionable at this point.

A multivariate discrimination technique is described that is designed to handle missing data while providing optimum classification of an unknown event based on a given set of discrimination variables.

=====

TITLE: (U) Code Comparisons and Modeling in Verification Scenarios.
Document # - LA-CP 88 0243.

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

OCT-88

ABSTRACT:

(U) As a method to insure the accuracy and reliability of our numerical solutions of the non-linear differential equations that model the physics of interest for our verification scenarios, we subject the results from our 2-D code simulations to comparisons to other codes at AWE and LLNL. The results are very encouraging, indicating agreement between the codes and support for our modeling approach.

UNCLASSIFIED

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TITLE: (U) Seismic Array Performance Analysis Using a Hybrid Expert System. Document # - SAND88-2410

SPONSOR: DOE

PERFORMING ORGANIZATION: SANDIA NATIONAL LABORATORY

NOV-88

ABSTRACT:

(U) Several factors contribute to the performance of a seismic array in locating events; configuration, frequency response, and distribution of sensor types are all important. Statistical analysis of the effect of these multiple variables on event location accuracy requires tedious repeated runs of analysis codes, using different input data sets and parameters. A hybrid expert system is an ideal tool to aid in processing and analyzing massive amounts of data and creating and manipulating a data base. This relatively new concept is a coupling of artificial intelligence (AI) programming techniques with analysis codes. Our expert system combines the individual strengths of an AI machine (Symbolics 3610) and conventional microcomputer (MicroVAX II). Code written in Lisp on the Symbolics provides the user interface, maintains the data base and runs the desired FORTRAN codes, which reside on the MicroVAX II. Functions are provided for entering data into the data base, analyzing data sets with respect to multiple variables, and inspecting the results in graphical form. The system is easily expandable to include new analysis methods. We demonstrate the capabilities of the hybrid expert system, ASSISTANT, using teleseismic data from the NORESS and ARCESS seismic arrays. The effects of array configuration, event set, frequency band, and location algorithm on the event location accuracy are illustrated using several examples.

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TITLE: (U) Distributions for Seismic Signal Representation.
Document # - UCRL 99869.

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATIONAL LAB

NOV-88

ABSTRACT:

(U) This paper describes an application of distributions (e.g. spectrograms) to the interpretation of continuous data streams from seismic array stations. Such data representations can be used to construct an analytic interface for the purpose of screening large quantities of data. Three types of distributions are considered: spectrograms (energy vs. frequency and time), bearing and slowness distributions (energy vs. direction or slowness and time). The main seismic interpretation functions of detection, wave identification and association, location, and event classification can be performed from a visual inspection of an appropriate combination of distributions and trace displays. A system based on data "visualization" should have high throughput and perform well in a nuclear test ban treaty verification role.

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TITLE: (U) Interpretations: Understanding Soviet Arms Control
Motivations and Verification Attitudes.
Document # - LA 11475 MS.

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

DEC-88

ABSTRACT:

(U) The root motivation at the heart of present Soviet arms control motivations and verification attitudes is grounded within the broad historical perspective of Russian and Soviet mobilization struggle. It is from this perspective that present Soviet behavior is rooted. Our understanding of this root motivation is essential to identifying opportunities to enhance U. S. -Soviet relations and in turn our national security.

=====

TITLE: (U) "A Layman's Guide to Constitutional Aspects of
International Arms Control Agreements Involving the United
States". Document # - K/ITP 241.

SPONSOR: DOE

PERFORMING ORGANIZATION: OAK RIDGE GASEOUS DIFFUSION PLANT

DEC-88

ABSTRACT:

(U) The document examines the legal implications and complexities that must be understood and evaluated should the facilities and contractors of the U. S. Department of Energy not be exempted from on-site inspections conducted by the Soviet Union under a future Strategic Arms Reduction Talks (START) treaty or under other future arms control treaties.

UNCLASSIFIED
UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

CONGRESSIONAL REPORT OF
ARMS CONTROL AND DISARMAMENT STUDIES

(REPORTS COMPLETED IN 1987)

30-JUN-89

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30-JUN-89

CONGRESSIONAL REPORT OF ARMS CONTROL AND DISARMAMENT STUDIES
(REPORTS COMPLETED IN 1987)
SUPPLEMENT NO. 1

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page 1

TITLE: (U) Time-Resolved and Energy-Resolved Coded
Aperture Images with URE-Tagging

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

JAN-87

ABSTRACT:

(U) Coded aperture imaging with uniformly redundant arrays (URSA) is the standard technique for imaging at high energies (x-rays above 5 Kev). Previously, obtaining time or energy resolution required excessive computations virtually making it unfeasible to do. We present a new method of coded aperture analysis called ura-tagging which reduces by orders of magnitude the computation time. This will facilitate imaging whenever time resolution or energy resolution is required.

=====

TITLE: (U) Corrections Needed for Backazimuth
Estimation from the RSTN Stations

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

JAN-87

ABSTRACT:

(U) The five stations of the DOE Regional Seismic Test Network (RSTN) began operating in 1982 and ceased collecting data in 1986. In the course of event location studies using RSTN data, we found that some data corrections were needed for backazimuth estimation. Although most of these corrections were reported in various documents, we felt that it would be helpful to users of RSTN data to summarize the findings.

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page 2

TITLE: (U) Source Mechanism of the 19:51 Borah Aftershock
10/28/83 Using Regional Recording of Raleigh Waves,
Love Waves and Pnl

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

JAN-87

ABSTRACT:

(U) The aftershock at 19:51 on 10/28/83 with an mb of 5.4 and ML of 5.8 (NEIS) was among the largest following the Borah Peak earthquake in central Idaho. We have assembled a dataset of recordings from the DWSSN, WWSSN, RSTN, CSSN, Livermore and Berkely broadband networks to study the source mechanism of this aftershock using techniques available to regional seismograms. Results from studies by Richins and other investigators provide good control on the epicenter and the fault-plane geometry. Surface-wave amplitude and phase spectra in the period range of 8-30 sec were inverted for source depth and seismic moment tensor. Pnl waveforms were inverted for source geometry and source time function using the nonlinear least squares technique of Baker and Doser. The source geometry determined from Pnl is in excellent agreement with previous results. On the other hand, the moment tensor results obtained from surface waves vary significantly depending on the prescribed source duration.

=====

TITLE: (U) LLNL Digital Seismic Data Acquisition
System Manual

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

FEB-87

ABSTRACT:

(U) We developed a replacement for the Local Livermore Seismic Network based on two LSI-11/23 CPUs, which can digitize 64 data channels at 100 samples per second (sps). The new system, known as NEWT, fulfills the data acquisition and archival tasks; it also performs near-real-time automatic data analysis. We adapted the NEWT to become a portable system, called MUNCH, which is described in this manual. MUNCH performs primary data acquisition, event detection, and archival tasks. The MUNCH seismic data acquisition system is a minicomputer-based Digital Equipment Corp. RSX-11 system with special applications software, which detects, records, and plots seismic events. It can handle up to 48 channels (16 remote three-component stations) of seismic data. The remote stations telemeter digital seismic data to a central location where the data are archived. Each remote station digitizes three channels of seismometer output at 120 sps each or one channel at 360 sps. The remote station can transmit data for distances up to 40 km, but there must be a clear line-of-sight between the central and remote stations.

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page 3

TITLE: (U) Separating Tectonic Release from Propagation Effects
in P Waveforms from East Kazakh Explosions

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

MAR-87

ABSTRACT:

(U) A central issue in the current debate on seismic verification is the reliability of the mb versus yield relationship: systematic amplitude biases from geologic structure or tectonic release during the explosion may perturb the seismic yield estimate. In addition to differences in attenuation between test sites, a regional contribution from tectonic release to the mb magnitude might introduce a bias within specific areas of a test site. Focusing of seismic waves by crustal heterogeneities might also bias the magnitude estimate if the station distribution is poor. A previous study suggests that tectonic release may introduce a secondary pulse into the P waveform (Smith et al., 1985) but this analysis cannot eliminate propagation effects as its origin. The origin of these perturbations to the P waveforms is the topic of this report.

=====

TITLE: (U) Elements of a System for Verifying a
Comprehensive Test Ban

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

MAR-87

ABSTRACT:

(U) Discrimination is only part of the monitoring system for a CTB or a low yield threshold test ban. To place it in perspective, this paper includes the goals of the monitoring system, its functions, the challenges to verification, discrimination techniques, and some recent developments. Some of the long term benefits of a CTB, especially its contribution to confidence building and stability, are at risk because of the potentially large number of unidentified or misclassified events that will occur. These are disturbances which are detected but cannot be unequivocally identified as a nuclear explosion, a chemical explosion, or an earthquake.

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TITLE: (U) Monitoring the Limits on Intermediate Range Nuclear Forces:
A Decision Analysis Framework for Evaluating On-Site
Inspection Options

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PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

MAR-87

ABSTRACT:

(U) An intermediate-range nuclear force (INF) treaty would permit each side to retain a limited number of intermediate-range missiles. One of the major verification provisions of an INF treaty would most likely be human on-site inspection (HOSI) of operating missile bases. There are many options for an HOSI program; e.g., the type of facilities inspected, amount of advance notice, standdown requirements, available data on missiles, and counting rules.

We have developed an analytical framework for evaluating the relative benefits and possible disadvantages of various HOSI options. This report describes the use of the framework in analyzing several HOSI options for operational SS-20 bases. In particular, we demonstrate the use of the approach in designing HOSI options capable of detecting various scenarios for evading the limits established by the treaty. The analysis provided several insights into the role of HOSI in detecting these evasion scenarios.

=====

TITLE: (U) System and Site Noise in the Regional
Seismic Test Network

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

APR-87

ABSTRACT:

(U) The Regional Seismic Test Network (RSTN) consists of five broadband, three-component, telemetered seismic stations sited in North America in 100 m boreholes. Examination of both the system noise and the seismic site noise at these stations leads to the following conclusions: (1) the vertical short-period band data are not degraded by quantizing noise, even at very low levels ($<0.1 \text{ nm}^2/\text{Hz}$, @1Hz); this is also the case for mid-period band signals. (2) Aliasing in the short-period band causes significant distortion above 16 Hz. (3) For five noise samples, the vertical earth noise at 1 Hz at the RSTN stations range from $.07 \text{ nm}^2/\text{Hz}$ (RSNT) to $1.8 \text{ nm}^2/\text{Hz}$ (RSNY), and the average displacement roll-off is $-2 \text{ nm}/\sqrt{\text{Hz}}/\text{Hz}$ (proportional to F^{-2}); above 1Hz, RSCP is the noisiest and RSNT the quietest station. (4) At RSNT during quiet times, some of the observed noise may be due to the vertical component S-750 seismometer. It is our conclusion that there is no significant system contamination of regional seismic data recorded by the RSTN and that it records these data with good fidelity.

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TITLE: (U) Siting and Deployment of Kansas Seismic Array

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

APR-87

ABSTRACT:

(U) To test aspects of seismic array performance as potential treaty verification stations, an experiment was conducted with a seismic array in southeastern Kansas. The site was chosen on the basis of seven site-selection criteria: geologic analog to Soviet Union geology, depth to bedrock, regional seismic sources, background seismic noise level, land accessibility, subsurface geologic features and other seismic stations in the vicinity. The array deployment consisted of thirteen three component stations located in a particular geometry over four square kilometers. All stations were mounted on bedrock and protected from water intrusion and wind noise. Data was digitized and telemetered to a central recording trailer. Data, shipped to LLNL, will be analyzed to test spatial stationarity and scaling with respect to array performance measures such as array gain, spacial coherence, bearing estimation error, and phase velocity estimation error.

=====

TITLE: (U) Seismic Site Selection at High Frequencies:
A Case Study

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

APR-87

ABSTRACT:

(U) A viable in-country seismic network for monitoring test ban treaties depends upon our ability to select suitable sites for seismic stations. Effective high frequency stations (greater than 10 Hz) rely on the premise that quiet sites with very low seismic noise and excellent signal-to-noise can be found throughout the Soviet Union. This report outlines a case study of site selection within the Midwestern United States. These are not quiet sites, but are representative of agricultural regions and indicate the sensitivity of high frequencies to cultural noise. Based on this study, site selection procedures designed for short-periods are inadequate for high frequencies. Above 10 Hz strong spectral lines from mechanical sources and diurnal variations dominate the seismic noise; this cultural noise might obscure narrow-band spectral reinforcements which often characterize Pn signals for large chemical explosions (Smith and Gross, 1987). Thus, interference from narrow-band spectral noise would reduce the promise of high frequencies as a discriminant for decoupled explosions - our inability to discriminate numerous large mining blasts would give many unidentified events. To eliminate the offending noise sources requires a large increase in their distance from a prospective seismic station.

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TITLE: (U) High-Frequency Observations of Signals and Noise
Near RSON: Implications for the Discrimination
of Ripple-Fired Mining Blasts

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PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

APR-87

ABSTRACT:

(U) Discrimination of large chemical explosions (e.g., mining blasts) from possible clandestine nuclear tests (e.g., decoupled explosions) is a significant issue for seismic verification. Unless discrimination is possible, the numerous mining blasts within the USSR would give ample opportunity for concealing a clandestine test. Everndern et. al. (1986) advocate high frequencies as a means to detect these clandestine tests; however, mining blasts must still give a unique signature for their discrimination. Specific conditions are also necessary for high-frequency verification: low attenuation and quiet seismic stations are among the most important. In this study, we address these problems under conditions representing a best case scenario. This study suggests the existence of a distinctive signature for large chemical explosions: strong, high-frequency spectral peaks in the P spectra introduced by delay shooting or ripple-firing. Its application depends, however, on a frequency band extending to at least 35 Hz at regional distances and predictably quiet seismic sites.

=====

TITLE: (U) Does a Non-Signal Gadget Make Any Sense?

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

MAY-87

ABSTRACT:

(U) The light transmission of optical fibers changes upon irradiation, thus offering a radiation detection technique that complements traditional methods and provides additional information.

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TITLE: (U) The DMSP Package B+ Instrument

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PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

MAY-87

ABSTRACT:

(U) Fission debris locators have been flown on the Air Force DMSP Satellite since 1973. Recently, the instrument has been redesigned to serve as a flexible bus capable of supporting a wide variety of more advanced missions and developmental sensors. A microprocessor-based data system allows relatively complex instrument functions to be accommodated within the modest (180bps) telemetry allocation. It also affords an easy mechanism for modifying the mission, both in basic design and in on-orbit function, without disturbing the interface to the spacecraft. The instrument is presently designed to support an advanced version of the debris locator which has an extended capability for monitoring the charged-particle environment in which the spacecraft is operating. Flight hardware is currently being fabricated, and it is anticipated that the instrument will be available for integration at the spacecraft contractor's facility during July 1987. The instrument and the mission are described. Results of computer simulations of the mission are presented.

=====

TITLE: (U) Detection of Micrometeoroids and Orbital Debris
Using Small Satellites Launched from the Space Shuttle

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

MAY-87

ABSTRACT:

(U) The Los Alamos National Laboratory, working with Defense Systems, Inc., is currently involved in feasibility studies for a satellite to carry a detector system for monitoring the directional, mass and velocity distributions of small particles in the earth's neighborhood. Particles, of both natural and man-made origin, down to a few micrometers in diameter would be detectable. An elliptical orbit, combined with a satellite lifetime of three to five years, would give statistically significant data for altitude and temporal variations to be determined.

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TITLE: (U) High Resolution Data Base for Use With MAP

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

MAY-87

ABSTRACT:

(U) A high resolution cartographic data base of the World is available from the CIA. We obtained this data, extracted portions of the data, and produced cartographic files of varying resolutions for use with MAP, our in-house cartographic plotting program. This document describes the steps taken to create these cartographic files.

=====

TITLE: (U) Seismic Noise Spectra at Elko, Kanab, Landers and Mina

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

MAY-87

ABSTRACT:

(U) The ambient seismic noise at the four Digital Seismic Stations operated by the Lawrence Livermore National Laboratory is computed for four 500-second time windows: summer daytime, summer nighttime, winter daytime and winter nighttime.

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TITLE: (U) Investigation of mb and Ms Formulas for the Western US
and their Impact on the Ms/mb Discriminant

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

JUN-87

ABSTRACT:

(U) The impact of regional mb and ms formulas on regional ms/mb discrimination is investigated using a large number of Western United States earthquakes and explosions. Comparison of NEIS mb values with regional mb values shows a systematic error of 1.2. Additionally, a simple analysis of variance shows that the variance of the magnitude estimate is reduced when $\log(A)$ replaces $\log(A/T)$. These changes, along with a refinement of the distance correction, yield a new regional mb for the Western United States given by $mb = \log(A) + 2.4 \log(\text{distance in km}) - 3.95 +$ a station correction, where $A=0$ to peak amplitude in nanometers. Usage of this formula improves the performance of regional Ms/mb discrimination by a factor of 2 to 6.

TITLE: (U) Crustal Structure of the Adirondacks Determined from
Broadband Teleseismic Waveform Modeling

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

JUN-87

ABSTRACT:

(U) Broadband receiver functions developed from teleseismic P waveforms recorded on the midperiod passband of the DOE's Regional Seismic Test Network station RSNY are analyzed to examine the crustal structure beneath the Adirondack Highlands of upstate New York. Radial receiver functions are inverted in the time domain to determine the vertical shear velocity structure at four distinct back azimuths. Lateral changes in structure are identified by examining azimuthal variations in the vertical structure. Southeast of RSNY, our model consists of a thick crust, including a broad crust-mantle transition. The most prominent structure is a high-velocity zone (shear velocity >4.0 km/s) between 18 and 26 km depth which overlies a lower crust of low average shear velocity (<3.7 km/s). The extent of the high-velocity zone correlates in depth with a highly reflective zone in Consortium for Continental Reflection Profiling profiles SE of RSNY, while the deep low-velocity zone may be correlated with a broad electrical conductivity anomaly in the Adirondacks. This general structure is also seen SW of RSNY, but is more difficult to document at NW and NE azimuths.

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TITLE: (U) Sterling Revisited: The Seismic Source for a
Cavity-Decoupled Explosion

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

JUL-87

ABSTRACT:

(U) In the STERLING event, a 0.38 kt nuclear device was exploded inside a roughly spherical cavity, of approximately 17 m radius. The cavity, located in the Tatum salt dome, had been created by a 5.3 kt tamped explosion more than 2 years earlier (SALMON event). Analysis of data obtained in SALMON and STERLING indicated a corner frequency for STERLING near 10 Hz, a factor of 4 less than predicted by the simplest decoupling theory. We have performed a comprehensive re-examination of the experimental records and find that the original report was incorrect and that the STERLING experiment was in near perfect agreement with theory. The most likely reason for the error is discussed.

=====

TITLE: (U) High Resolution Seismic Attenuation
Tomography at Medicine Lake Volcano, California

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

JUL-87

ABSTRACT:

(U) Medicine Lake Volcano, a broad shield volcano about 50km east of Mount Shasta in northern California, produced rhyolitic eruptions as recently as 400 years ago. Because of this recent activity it is of considerable interest to producers of geothermal energy. In a joint project sponsored by the USGS and the US-DOE, the USGS and LLNL conducted an active seismic experiment designed to explore the area beneath and around the caldera. The experiment consisted of eight explosions detonated in a 50 km radius circle around the volcano recorded on a 11 x 15 km grid of 140 seismographs. The travel time data from the experiment have been inverted for structure and are presented elsewhere in this volume. In this paper we present the results of an inversion for 1/Q structure using t^* data in a modified Ald inversion scheme. Although the data are noisy, we find that in general attenuative zones correlate with low velocity zones. In particular, we observe a high 1/Q zone roughly in the center of the caldera at 4 km depth in between two large recent dacite flows. This zone could represent the still molten or partially molten source of the flows.

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TITLE: (U) Spectral Discrimination Between NTS Explosions
and Western US Earthquakes at Regional Distances

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

AUG-87

ABSTRACT:

(U) Spectral ratio discriminants are applied to 72 western U.S. earthquakes and 64 NTS explosions recorded at four broadband seismic stations surrounding NTS. The ratio of the energy in the (1-2)/(5-8) Hz bands for Pn, Pg, and Lg is calculated and a simple distance correction applied to the data. The spectral ratio appears to have potential as a discriminant at relatively small magnitudes ($3.0 < m_b < 4.5$) and single station misclassification probabilities for detected phases range from 4 to 33%, with Lg showing the best performance followed by Pg and Pn. Below m_b 4.5 - 5.0 the earthquakes are observed to have more high frequency energy than the explosion for all three phases. At higher magnitudes, the two populations merge and discrimination is poor. Overburied explosions are characterized by the existence of more high frequency energy than those at standard containment depths and are often misclassified. The Brune dislocation source model is shown to satisfactorily fit the earthquake spectral ratios plotted as a function of m_b for reasonable stress drops. However, the Mueller-Murphy explosion source model has problems predicting the decrease in the explosion spectral ratio observed at higher magnitudes ($m_b > 4.5-5.0$). This may be due to uncertainties in the apparent source time function for explosions. These complications may be due to changes in the dynamic response of the material in the near-source region as a function of overburden pressure or to variations on regional phase excitation with depth.

TITLE: (U) Application of Nuttli's Method for Yield Estimation to
NTS Explosions Recorded on LLNL's Digital Seismic System

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

SEP-87

ABSTRACT:

(U) Methods utilizing Lg waves for estimating yields of underground explosions have attracted considerable attention for their accuracy, claims of portability and suitability for low-yield test ban verification. In this study, the method developed by Nuttli is applied to a large dataset of NTS explosions recorded on Livermore's Digital Seismic System. The purpose was to check the reproducibility of Nuttli's results and to verify the accuracy of $m_b(Lg)$ to estimate yield at high and low yield levels. Portability of the method is examined from the perspective of variability of the magnitude-yield relations as a function of station site and source geology. The results of this study show accuracies of about a factor of 1.6 in yield at the two sigma level for shots below the water table in source regions exhibiting more or less uniform coupling.

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page 12

TITLE: (U) Source Models of the Harzer Explosion from Regional
Observations of Fundamental and High-Mode Surface Waves

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

OCT-87

ABSTRACT:

(U)

For shallow source depths, the moment-tensor elements with isotropic radiation patterns, M_{zz} and $M_{xx}+M_{yy}$, are not resolvable in moment-tensor inversions of long-period surface wave data due to the fact that their respective Green's functions have similar frequency dependence. Examination of Green's functions at higher frequencies show that, while resolution for some moment tensor elements improves, it is still not possible to resolve the isotropic-radiating moments from fundamental-mode data recorded at regional distances. On the other hand, the addition of higher-mode Rayleigh-wave amplitudes can improve the resolution of these moments significantly since there are appreciable differences between the higher-mode Green's functions. An extension of Romanowicz's algorithm is presented to invert fundamental-mode and higher-mode data for the second-order moment tensor. A source of "noise" in the estimation of the moment tensor for underground explosions is the spallation of geologic strata at ground zero since this too can be a significant source of higher modes. The inversion proposed in this paper accounts for possible higher-mode excitation due to spall using the source model of Day et al. The inversion is applied to regional recordings of the Harzer explosion at NTS. The results of the inversion demonstrate a trade-off between the second-order moment tensor representation and the single, directed force used to represent spall. Observations and numerical simulations of spall provide estimates of spall source parameters, which in turn constrain the moment-tensor representation of Harzer. The results of this study demonstrate the clear need for observations to characterize the spall source associated with underground explosions.

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TITLE: (U) Designing Arrays for Modern High Resolution Methods

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB.

NOV-87

ABSTRACT:

(U) A number of algorithms have been proposed in the recent past for analyzing data from a sensor array. These include MUSIC, MEM, MLM and their variations. Successful use of an array, depends not only on the particular method which is used, but also on the characteristics of the signal and noise. However, the performance of many of these recently proposed methods has not been completely studied because the analysis of a non-linear method is often intractable.

The performance problem is particularly important in an application area like seismology where the characteristic of the signal and noise in terms of its coherence, multipath and scattering can vary significantly. In this paper we describe a system which allows an expert to rapidly generate different kinds of signal and noise and apply them to different types of arrays with a number of modern high-resolution methods.

=====

TITLE: (U) Planar Array Bearing Estimation
Performance Bounds

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

NOV-87

ABSTRACT:

(U) The Weiss-Weinstein bound is evaluated to estimate planar array bearing estimator performance over a wide range of SNR and time-bandwidth products. The bound demonstrates superior bearing estimation performance for small-aperture seismic arrays when contrasted with simpler single-station instruments, particularly in the threshold SNR region. The results have implications for the composition of a seismic network that might get deployed to verify nuclear test ban treaties.

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page 14

TITLE: (U) New Results from a Reevaluation of the
Nuclear Events Salmon and Sterling

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

DEC-87

ABSTRACT:

(U) A reevaluation of both the borehole data taken within the salt dome and the seismic data taken at ranges of 16 to 110 km shows (1) that the decoupling of surface waves is no different than that for p-waves, (2) that Sharpe's model of an explosion is inadequate for a tamped explosion but is satisfactory for the decoupled case. The implications for detection at high frequency are: that the surface waves are neither more nor less detectable than p-waves from a decoupled shot; and that a decoupled explosion will be no easier to detect than a much smaller tamped one with the same seismic magnitude since the variation in spectral content is small over a very broad range of frequencies.

=====

TITLE: (U) Energy-Flux Model of Seismic Coda:
Separation of Scattering and Intrinsic Attenuation

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

1987

ABSTRACT:

(U) A new model of seismic coda is presented, based on the balance between the energy scattered from the direct wave and the energy in the seismic coda. This energy-flux model results in a simple formula for the amplitude and time decay of the seismic coda that explicitly differentiates between the scattering and intrinsic (anelastic) attenuation of the medium. This formula is valid for both weak and strong scattering and implicitly includes multiple scattering. The model is tested using synthetic seismograms produced in finite difference simulations of wave propagation through media with random spatial variations in seismic velocity. Some of the simulations also included intrinsic dissipation. The energy flux model explains the coda decay and amplitude observed in the synthetics, for random media with a wide range of scattering Q . In contrast, the single-scattering model commonly used in the scattering of microearthquake coda does not account for the gradual coda decay observed in the simulations for media with moderate or strong scattering attenuation (scattering $Q \leq 150$). The simulations demonstrate that large differences in scattering attenuation cause only a small changes in the coda decay rate, as predicted by the energy-flux model. The coda decay rate is sensitive, however, to the intrinsic Q of the medium.

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TITLE: (U) Event Discrimination with Ionospheric Monitoring

SPONSOR: DOE

PERFORMING ORGANIZATION: LAWRENCE LIVERMORE NATL. LAB

1987

ABSTRACT:

(U) During the decade following the start of the U.S. 150 kT underground nuclear test limitation in 1976, the national laboratories and contractors of the Ionospheric Monitoring Program, U.S. DOE, carried out research that amply validated proposals first made in 1970 by Wouters of LLNL and Libby of Rand Corporation, that small, fully contained underground nuclear explosions could be detected by high-frequency ionospheric radar systems from global distances. A considerable amount of experimental and theoretical progress was made, which resulted in a practical physical understanding of (a) the acoustic and ionospheric disturbances generated by these explosions, (b) the radar processes by which they are detected, and, to a lesser extent, (c) the detection of other types of events having false alarm and confusion potential. The following report summarizes in a general way the understanding that has been gained so far by the theoretical program at LLNL, and explores the potential the ionospheric monitoring concept offers toward helping resolve test ban treaty verification problems, and for enhancing intelligence-related "national technical means".

=====

TITLE: (U) E-Layer Ionospheric Disturbances
Following the Coalinga Earthquake

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

1987

ABSTRACT:

(U) A bistatic HF doppler network in California recorded ionospheric disturbances after the Coalinga, California and Borah peak, Idaho earthquakes of 1983. The ionospheric disturbances appear to be associated with acoustic waves launched vertically into the atmosphere from the ground motion caused by radially propagating surface seismic (Rayleigh) waves. The ionospheric disturbances were detected by variations in the frequency of the received transmissions (doppler shifts); such disturbances have been observed in association with a number of previous earthquakes. The doppler shifts were caused by phase path changes induced by the motion of the neutral atmosphere at the reflection height of the radio wave (200 km). We have also detected changes in the spectrum of the received transmissions at the time of the passage of the acoustic waves through the E layer.

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TITLE: (U) F-Region Ionospheric Detection of Far Infrasound
from Rocket Ascent: Preliminary Results

SPONSOR: DOE

PERFORMING ORGANIZATION: LOS ALAMOS NATIONAL LABORATORY

1987 /

ABSTRACT:

(U) We have detected long-period infrasound wave trains at a distance ≥ 1300 km from their portable source, using HF Doppler sounding of the midnight F-layer. These measurements indicate the feasibility of ionospheric remote sensing of extremely weak disturbances whose ground-level pressure signatures would likely either be obscured by ambient noise or be in a "zone of silence."

United States Arms Control
and Disarmament Agency

Office of
Inspector General

**Semiannual Report
to the Congress**



*October 1, 1988 to
March 31, 1989*

United States Arms Control
and Disarmament Agency

Office of
Inspector General

Semiannual Report
to the Congress

*October 1, 1988 to
March 31, 1989*

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

Washington, D.C. 20451

April 28, 1989

OFFICE OF
INSPECTOR GENERALMEMORANDUM

TO: George Murphy, Acting Director

FROM: -OIG - Sherman M. Funk *sf*

SUBJECT: Semiannual IG Report: October 1, 1988 - March 31, 1989

The subject report (attached) is required by the Inspector General Act of 1978 and covers the work of my office during the period indicated. The IG Act also requires that you transmit the report to the appropriate committees of the Congress within 30 days of its receipt, together with any comments you may wish to make.

Our recently completed inspection of ACDA -- the first comprehensive management review of ACDA since its establishment -- surfaced a number of important issues, touching on virtually every area of agency activity.

Overall, we were pleased to find that ACDA is performing its basic mission very well indeed. For example, the USG negotiating teams in Geneva and Vienna gave high marks to the quality and speed of ACDA's technical back-up.

To be sure, ACDA is not carrying out many elements of the basic mandate contained in its enabling legislation. That mandate, however, was articulated nearly 30 years ago, when arms control was much less significant on the national agenda. It was clear to our inspectors that the provisions of the Act, literally interpreted, simply could not be implemented today. But it was also clear that the goals of the basic legislation are being met.

As described in the attached report, we think that the effectiveness and impact of ACDA can be strengthened by making a few critical organizational and functional realignments, pointed toward a more cohesive use of the talents and skills embodied in the agency.

I want to thank former Director Burns, you, and the ACDA staff for your cooperation and assistance these past six months. As one of my inspectors commented, after he had become familiar with the agency, and with the arms control and disarmament community: "If ACDA were not here, something very much like it would have had to be created."

Attachment

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I. Executive Summary

In December 1987, the Inspector General of the Department of State was designated by Congress to serve concurrently as Inspector General of the U.S. Arms Control and Disarmament Agency (ACDA).¹ The first review of ACDA by the Office of Inspector General (OIG) was a survey of ACDA's security program and practices, conducted from February through July 1988, which led to a subsequent inquiry into charges of nepotism in Geneva. This was followed by a review in October 1988 of ACDA administrative practices in Geneva, Switzerland, and a full inspection of ACDA operations during the first quarter of 1989.

The October review examined allegations that arose during the early 1988 survey of ACDA's security program and practices. These allegations concerned inappropriate and costly administrative practices at ACDA offices in Geneva, Switzerland. The review team received the full support of the ACDA Director, who traveled to Geneva to examine the situation personally. Improvements initiated during the survey and prompt implementation of OIG recommendations realized a \$318,000 annual cost savings.

The inspection of ACDA conducted in early 1989 marked the first across-the-board examination of ACDA operations and established a "baseline" evaluation by which to judge future reviews of ACDA activities and offices. In addition to providing an overview of the operations of the entire Agency, the inspection exam-

ined the arms control process and ACDA's role and effectiveness within this structure. The inspectors concluded that ACDA is not now satisfying the full intent of the legislation that established the Agency, in that it does not exercise the primary responsibility for arms control that was mandated by the Congress in 1961. Nevertheless, there is a continuing need within the U.S. Government for an organization such as ACDA to manage the arms control process and to ensure consideration of arms control issues in the formulation of foreign policy goals and objectives.

The central determination of the inspection was that ACDA can be strengthened to perform its duties more effectively, notwithstanding the competition for leadership that exists within the arms control arena. Management of resources was found to be a problem, although significant improvements in internal security controls were noted. The inspectors also found problems in the management and administration of the U.S. arms control delegations in Geneva and Vienna.

Compliance of ACDA and State Department management with OIG recommendations has been good. The 10 security recommendations still unresolved at the end of the last reporting period have been resolved. For the current reporting period, all recommendations issued in connection with the OIG review of administrative practices in Geneva have been implemented, and the report has been closed. Implementation of the inspection recommendations is underway.

¹See Public Law 100-213, "Arms Control and Disarmament Amendments Act of 1987," December 24, 1987.

II. Review of Administrative Practices in Geneva

During the survey of ACDA security programs, procedures, and policies conducted during the last reporting period, the OIG received allegations of inappropriate and costly administrative practices in Geneva, Switzerland. The OIG review of these allegations, conducted in October 1988, disclosed that ACDA:

- Showed improper preference in the hiring of American and foreign national contract personnel;
- Allowed improper use of official vehicles;
- Operated an inefficient official vehicle fleet;
- Underutilized official residences in Geneva;
- Extended official residence expenses to an unauthorized employee; and

- Had weak and inadequate internal controls in its financial and procurement operations in Geneva.

After being briefed by the OIG on its findings in Geneva, the then-Director of ACDA and members of the ACDA staff traveled to Geneva to review the problems. Corrective action was initiated, and a \$318,000 annual cost savings resulted.

In all, the auditors made nine recommendations to correct ACDA's administrative practices in Geneva. As of the end of this reporting period, ACDA had accepted and satisfactorily implemented all nine recommendations. Although action has been completed, ACDA's senior management must continue to emphasize the need to follow correct procedures and maintain adequate controls in its administrative as well as its program operations.

III. Inspection of ACDA

As forecast in the last semiannual report, the OIG conducted a baseline inspection of ACDA from January 3 to March 3, 1989. The inspection provided an overview of the operations of the whole agency—how well it was implementing policy, managing the resources given to it, and maintaining internal controls—and resulted in 57 recommendations for improvement. Because the inspection report was issued at the end of the reporting period, these recommendations are still being resolved.

OIG Findings

The inspectors concluded that ACDA has an impossible mission and is not now satisfying the full intent of the legislation that established

the Agency in September 1961, in that ACDA does not have primary responsibility for formulating arms control policies for the U.S. Government. In recent years, the subject of arms control has taken on such ever-increasing importance that it must be handled at the highest levels of government and cannot be the exclusive preserve of a sub-Cabinet agency. Nevertheless, the inspectors concluded that, in a way not foreseen in 1961, the will of the Congress is being carried out by the national security community of the executive branch as a whole. Arms control has achieved a place of such prominence on the national agenda that Presidents, Cabinet secretaries, and other advisers engaged in the business of national

security and foreign policy have developed their own staffs of experts devoted to arms control.

With regard to other aspects of ACDA's congressional mandate, the inspectors concluded that there is a continuing need within the U.S. Government for an organization such as ACDA (i.e., a semiautonomous, sub-Cabinet agency with a special relationship to the Secretary of State) that focuses on the management of the arms control process and ensures that the subject of arms control is not overlooked in the formulation of other national security policies. ACDA also has a major role to play in the implementation of arms control policies, and this role should become an increasingly important focus of ACDA efforts. In these more realistic roles, the performance of ACDA was found to be "mixed." Moreover, the inspectors noted that the arms control function is rapidly evolving and that ACDA has not yet established the proper degree of expertise and managerial focus to accept new responsibilities that are likely to arise. For example, the planning of verification is more important, as some arms control talks are now leading to agreements and the task of implementing arms control agreements has become real and current.

The inspectors concluded that ACDA can be strengthened to perform more effectively the tasks that it can reasonably be expected to perform, given its size, resources, and current position within the arms control structure of the U.S. Government. This is the central conclusion of the inspection.

Research and Analysis

One of ACDA's legislatively assigned responsibilities is to conduct research and analysis on arms control, both internally and externally, and to coordinate arms control research by other U.S. Government agencies. The inspectors found that ACDA's research budget is miniscule compared to those of other agencies involved in arms control issues, particularly the Departments of Energy and Defense. This makes it almost impossible for ACDA to have more than a minor voice in managing and coordinating such research, although ACDA has found innovative ways to involve itself in the more meaningful research areas.

One area of research in which ACDA, drawing upon the expertise of its personnel, already makes important contributions but could do so more effectively, is research and analysis of the arms control negotiations process, especially with regard to verification measures and compliance with arms control agreements. These research efforts currently are being conducted by ACDA's Verification and Intelligence Bureau, which also manages the operations analysis and intelligence functions of the Agency. The inspectors concluded that combining these functions in one bureau detracts from the performance of those tasks. Research on verification measures should be a forward-looking effort, testing hypotheses to be applied to talks now underway or likely to begin in the future. Analysis of compliance and implementation is more of a current effort, examining present actions in the light of agreements and negotiating histories, and the intelligence function is largely one of management and liaison.

The inspectors recommended that these functions be divided to encourage greater focus on each. As things stand, a quite justifiable preoccupation with compliance has caused verification studies to be short-changed—a case of the urgent overcoming the important. Research and analysis should be the sole function of one bureau. To that end, the inspectors recommended that additional, highly qualified people, including an analysis office from another bureau, be added to the Verification and Intelligence Bureau, which should then be renamed the "Verification and Research Bureau." Intelligence should be elevated to the status of an independent office attached directly to the Office of the Deputy Director of ACDA. This would bring it organizationally closer to ACDA's Office of Security and enhance the management of counterintelligence. The examination of compliance should be done by another separate office, directly under the ACDA Director, which would follow more closely the issues concerning treaty implementation. The inspectors considered this upgrading of the compliance function to be more in line with congressional intent than the present organizational arrangement.

Management of Negotiations

Congress also assigned ACDA to manage negotiations on arms control. In fact, at times in the past, the Director of ACDA has held the position of "Chief Arms Control Negotiator" for the United States or has headed one of the major negotiating delegations. The inspectors found both positive and negative aspects to such an arrangement. Given the heavy responsibilities of the ACDA Director for managing the arms control process in Washington, the inspectors decided that the disadvantages outweigh the advantages.

ACDA handles the task of providing technical support to arms control negotiations very well, and the Agency receives high marks from other elements of the U.S. Government engaged in these negotiations. ACDA officers are familiar with the interagency process and do a good job of backstopping delegations engaged in arms control negotiations; they can quickly prepare and clear responses to requests for guidance on those negotiations. ACDA also is praised for the quality of legal advice provided to arms control delegations, and in some cases, such as the U.S. interaction with the International Atomic Energy Agency (IAEA) in Vienna, ACDA's technical expertise is rated as "invaluable."

In other regards, ACDA's support of arms control negotiations is less satisfactory. There is some misalignment of responsibilities between the two bureaus primarily engaged in supporting negotiations—the Multilateral Affairs Bureau and the Strategic Programs Bureau. Both bureaus have devoted resources to issues that are not directly connected with the support of U.S. delegations to arms control negotiations, thereby detracting from their core responsibilities. The inspectors concluded that the work of these bureaus should be restructured, after which it will be possible to reduce the span of management control, providing a better focus to their work.

In addition, ACDA needs to organize itself to deal more effectively with the problems of proliferation of new arms technologies and exotic weapons, including chemical and biological weapons. The bureau that deals with these

matters should be reorganized to provide more effective technical analysis of developments in this area. One of ACDA's two "Special Representative" positions might be designated as a troubleshooter for this purpose.

Dissemination of Public Information

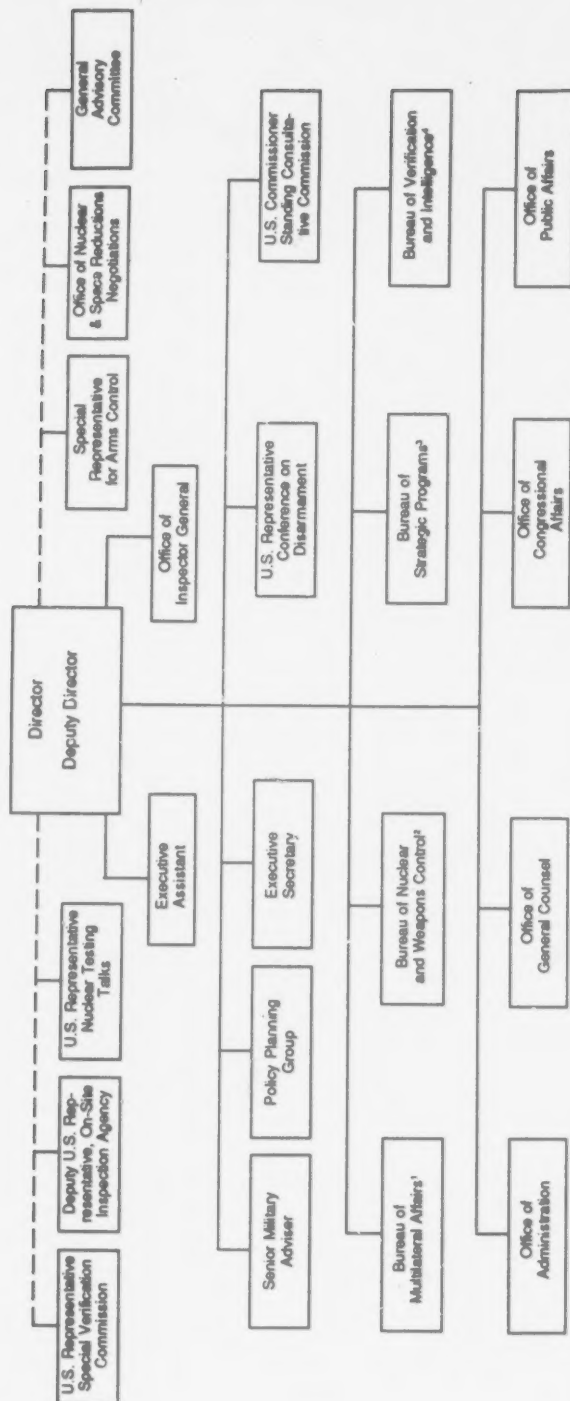
ACDA does not perform well in meeting a third congressionally mandated responsibility—that of disseminating information on arms control to the U.S. public. The Public Affairs Office of ACDA has suffered from poor management and a misalignment of staff. The office does not produce many publications, and those that are produced are not necessarily being sent to the right audiences or providing the data that the targeted audiences most require. The inspectors recommended that ACDA survey its subscribers—something that it has not done for several years—to update address lists and elicit audience views on the utility of ACDA publications. The possibilities of eliminating some reports, of privatizing certain publications operations, or of selling ACDA publications through the Government Printing Office also should be explored.

Verification of Arms Control Agreements

The last of the tasks assigned to ACDA in the 1961 legislation is responsibility for the "control" of arms control agreements (now referred to as "verification"). As pointed out above, ACDA is not currently in a position to fulfill this mandate completely, being limited to providing studies on compliance. U.S. representatives of both the Special Consultative Commission (SCC) on the Strategic Arms Limitation Talks and the Special Verification Commission (SVC) on the Intermediate-Range Nuclear Forces (INF) Agreement report to the Director of ACDA. An ACDA official chairs an interagency support group on INF implementation policy, which assists the work of a higher level interagency steering committee chaired by a National Security Council representative.

The inspectors found that ACDA's efforts in this area lack focus, however. As a result, ACDA is transmitting mixed signals on im-

U.S. Arms Control and Disarmament Agency



¹The Bureau of Multilateral Affairs contains three divisions: European Security Negotiations, International Security Affairs, and Science and Technological Policy.

²The Bureau of Nuclear and Weapons Control contains four divisions: Arms Transfer, International Nuclear Affairs, Nuclear Safeguards and Technology, and Defense Programs and Analysis.

³The Bureau of Strategic Programs contains three divisions: Theatre Affairs, Strategic Affairs, and Defense and Space.

⁴The Bureau of Verification and Intelligence contains three divisions: Verification, Intelligence, and Operations Analysis.

plementation and compliance issues. In addition, by direction of Congress, judgments on compliance are the direct responsibility of the ACDA Director—and of the President. In order to increase ACDA's expertise on implementation issues and provide Agency management with the necessary support to make informed judgments, the inspectors recommended that ACDA create a small staff directly under the Director's control, to be called the "Arms Control Operations Office." This office should be staffed by personnel with technical and legal competence in implementation issues (now assigned to other offices throughout ACDA), with the U.S. staff of the SCC and the SVC reporting to the Director through this office. The operations staff would coordinate ACDA input into the implementation policy guidance process, perform special compliance studies as directed, and integrate internal Agency judgments on the implementation of treaties and agreements.

The U.S. Government created the On-Site Inspection Agency (OSIA), under the direction of the Under Secretary of Defense for Acquisitions, to conduct U.S. monitoring and on-site inspections in the U.S.S.R. in connection with the implementation of the INF agreement and to manage similar activities of the Soviets in the United States and Western Europe. Because of the need to organize, staff, and fund this organization quickly, it was judged most feasible to organize it under Department of Defense auspices. Without being critical of the functioning of OSIA thus far, the inspectors, nevertheless, concluded that it may be time to regularize the position of OSIA within the arms control institutions of the U.S. Government.

This seems particularly necessary since it is likely that OSIA's role will expand to manage the monitoring of future arms control agreements. One means of accomplishing this would be to make the head of OSIA a second Deputy Director of ACDA, in order to provide better policy guidance. At present, there are problems regarding policy guidance, primarily in defining those issues which should be left to field management, those which OSIA and its parent agency can decide, and those in which there is legitimate interagency interest. Therefore,

even before permanent institutional measures affecting OSIA's future are agreed, the inspectors recommended that ACDA strengthen its internal procedures to integrate ACDA views on policy requirements for effective operation of OSIA.

Management of Resources

The inspectors were critical of ACDA management of resources. The personnel structure of ACDA is unclear and needs immediate attention. ACDA should arrange for a complete survey of positions and grades by an outside agency with personnel management expertise, such as the Office of Personnel Management or the Department of the Air Force. ACDA also needs to do more to develop a reasonable career ladder and to improve training and development of employees. The Director should reaffirm ACDA's commitment to equal employment opportunity and affirmative action principles. The Director and senior management should formulate and disseminate goals and objectives to guide the work of the Agency staff, which lower level management would then translate into bureau, office, division, and individual workplans. The Agency also needs to improve communication within ACDA.

ACDA has made significant progress in improving its internal security controls, following the recommendations provided in earlier General Accounting Office and OIG security reviews. There are still a number of security issues that need to be addressed, and the inspectors recommended prompt action on these.

Management and Administration of Arms Control Delegations

The inspectors also visited Geneva and Vienna to survey the management and administration of arms control delegations in those cities. Problems exist, and ACDA and the State Department together need to address these issues on an urgent basis. At present, no single agency has established guidelines for managing administrative support of arms control delegations in these cities. The resulting confusion has led to a degree of interagency competition

on providing prerequisites, which, in turn, has led to a number of questionable administrative practices.

The inspectors recommended that the Department of State and ACDA develop an agreement that will give the ACDA Director clear and unambiguous authority to establish

and enforce appropriate and reasonable standards for the administrative support of these delegations. This agreement should be approved by an interagency group representing all departments and agencies that furnish personnel as members or advisers of delegations engaged in arms control negotiations.

IV. Status of Previous OIG Reviews

The OIG security survey conducted during the last reporting period found that there was an overall lack of attention to security and oversight of programs prior to the appointment of a new Director of ACDA in April 1988. The auditors made 43 recommendations to correct the Agency's security deficiencies. Of these recommendations, 34 were addressed to ACDA and nine to the Department of State. The latter included reconfiguration of ACDA offices in the Department of State and physical arrangements for adequate handling of ACDA's sensitive compartmented information. All nine of these recommendations have been resolved and are being implemented.

Auditors also found that the Agency's administrative officer in Geneva had improperly employed two family members. The auditors recommended immediate termination of one family member's employment, appointment of an independent contract officer for the personal services contract of the other, and disciplinary action against the administrative officer.

ACDA's top management was receptive to OIG recommendations. As of March 1, 1989, all 34 of the security survey recommendations addressed to ACDA were favorably resolved, and all but 15 recommendations were closed. ACDA is implementing the remaining recommendations. Its actions cover most of the major deficiencies noted by OIG auditors in physical and personnel security as well as security in communications, documents, and automated data processing. Even when action is completed, however, senior ACDA management must maintain close oversight of all procedures and controls to ensure correction of a long-standing disregard of appropriate security practices.

With regard to the above-mentioned nepotism issue, the one family member's employment was terminated, a new contract officer was appointed to oversee the personal services contract of the other, and the administrative officer retired.

V. Resolution of Reports and Recommendations

Reports Issued This Period

ACDA Administrative Practices in Geneva, 9 SI-001, November 1988.

Inspection of the U.S. Arms Control and Disarmament Agency, AC-89-1, March 1989.

Reports Closed This Period

ACDA Administrative Practices in Geneva, 9 SI-001, November 1988.

Current Inventory

Open Reports

	10/1/88	Current Period		3/31/89
		<i>Issued</i>	<i>Closed</i>	
Security Survey	x	—	—	x
Administrative Practices	—	x	x	—
Inspection of ACDA	—	x	—	x

Active Recommendations

	10/1/88	Current Period		3/31/89
		<i>Issued</i>	<i>Closed</i>	
Security Survey	43	0	19	24
Administrative Practices	—	9	9	0
Inspection of ACDA	—	57	0	57
Total	43	66	28	81

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

Washington, D.C. 20451

THE
INSPECTOR
GENERAL

May 9, 1989

Honorable Claiborne Pell, Chairman
Committee on Foreign Relations
United States Senate
SD-446 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Chairman:

In response to your request, enclosed is a copy of our
Inspection Report of the Arms Control and Disarmament Agency.

This report is not classified for national security
purposes. Notwithstanding the fact that certain portions of
the report have been discussed in congressional hearings and
in the press, I do consider the report in its entirety to be
sensitive, and request your cooperation in not distributing
this document further without my prior authorization. Requests
from the general public will be treated pursuant to the Freedom
of Information Act, and you may refer such requests for the
report directly to Linda Topping of my Office of Counsel
(647-5059).

Should you have any questions regarding this report,
please contact me (647-9450) or my Assistant Inspector General
for Inspections, Edmund DeJarnette (647-9461).

Sincerely,



Sherman M. Funk
Inspector General

Enclosure

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**UNITED STATES
ARMS CONTROL AND
DISARMAMENT AGENCY**
Office of Inspector General

**INSPECTION OF
THE ARMS CONTROL AND
DISARMAMENT AGENCY**

AC-89-1

March 1989

IMPORTANT NOTICE

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OFFICE OF INSPECTOR GENERAL

INSPECTION OF THE
U.S. ARMS CONTROL AND DISARMAMENT AGENCYKEY JUDGMENTS

-- ACDA has long since ceased to be the U.S. Government organization having primary responsibility for arms control as was envisaged in the original legislation, the Arms Control and Disarmament Act of 1961. Nevertheless, Congress may have achieved one of the basic aims of the legislation, inasmuch as arms control has become an integral element of U.S. national security policy, and every one of the many agencies involved in arms control has equipped itself with a staff of arms control experts.

-- As a semiautonomous sub-Cabinet agency with a special relationship with the Secretary of State, ACDA can still perform many of the functions Congress envisaged for it, e.g., policy-oriented research and analysis, implementation of international agreements, support for arms control negotiations, and the furnishing of information to the Congress and the public. It should be strengthened to perform those functions more effectively than at present.

-- The Director of ACDA should play a critical role in the formulation and implementation of policy, and in the management of the U.S. Government's arms control resources. The Director's position can be strengthened through certain organizational changes.

-- ACDA is performing some of its functions well. The Agency does a good job of backstopping delegations engaged in negotiating arms control agreements; negotiators also praise

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the Agency's legal support to the delegations; and the technical expertise ACDA provides in support of U.S. interaction with IAEA in Vienna is described as invaluable.

-- Other functions of ACDA are less well done, and there is an urgent need for improvement. In particular, ACDA does not perform adequate internal research and analysis of arms control issues, one important example being the crucial area of verification measures. This activity needs to be reorganized and strengthened in order to emphasize research and analysis of possible future arms control agreements.

-- The implementation of arms control agreements and treaties is an increasingly important part of the arms control process; ACDA must assume the responsibilities given to it by the 1961 Act. Consideration should be given to bringing OSIA under the management of ACDA, perhaps by making the head of OSIA a second Deputy Director of ACDA. The Director of ACDA also needs to upgrade the implementation function within ACDA by creating a staff to provide integrated advice on the management of the implementation function, and to coordinate internal Agency judgments on compliance issues concerning various treaties.

-- ACDA must deal more effectively with the problems of proliferation of new and exotic weapons technology, e.g., biological, chemical, and advanced conventional and missile weapons technology.

-- There continue to be serious problems in managing and providing administrative support to arms control delegations in Geneva. Improvements have been slow because lines of authority over the interagency members of these delegations are unclear. ACDA and the Department of State need to reaffirm the authority of the ACDA Director to establish and enforce acceptable standards for the administrative support of these delegations. This requirement should also urgently be applied to the negotiating delegations now being established in Vienna. ACDA and the Department of State also need to resolve the questions concerning control by the permanent chiefs of mission in Geneva and Vienna over the assignment of U.S. Government personnel to their respective cities on a PCS basis.

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-- ACDA should improve its management of the public affairs function mandated by the 1961 legislation; in particular, it should survey the utility of its publications program.

-- ACDA faces all the management problems expected in a small agency with a high proportion of its supervisory positions reserved for political appointees. These problems have been compounded by the Agency's inadequate performance in personnel management, due in large part to inattention to the problem in the past. Agency management should review its personnel structure to validate the numbers and grades of personnel, improve the mix of the required skills, devise rational career ladders, and improve training and development programs for its career employees. ACDA also needs to resolve the problems of poor morale among secretaries and support staff, and senior management must reaffirm its commitment to EEO and Affirmative Action principles.

-- Communication is surprisingly poor for an agency of ACDA's relatively small size. Senior management has not articulated goals to guide the planning of the Agency's work. The Director also lacks an adequate executive secretariat to establish, coordinate, and disseminate Agency positions on arms control issues.

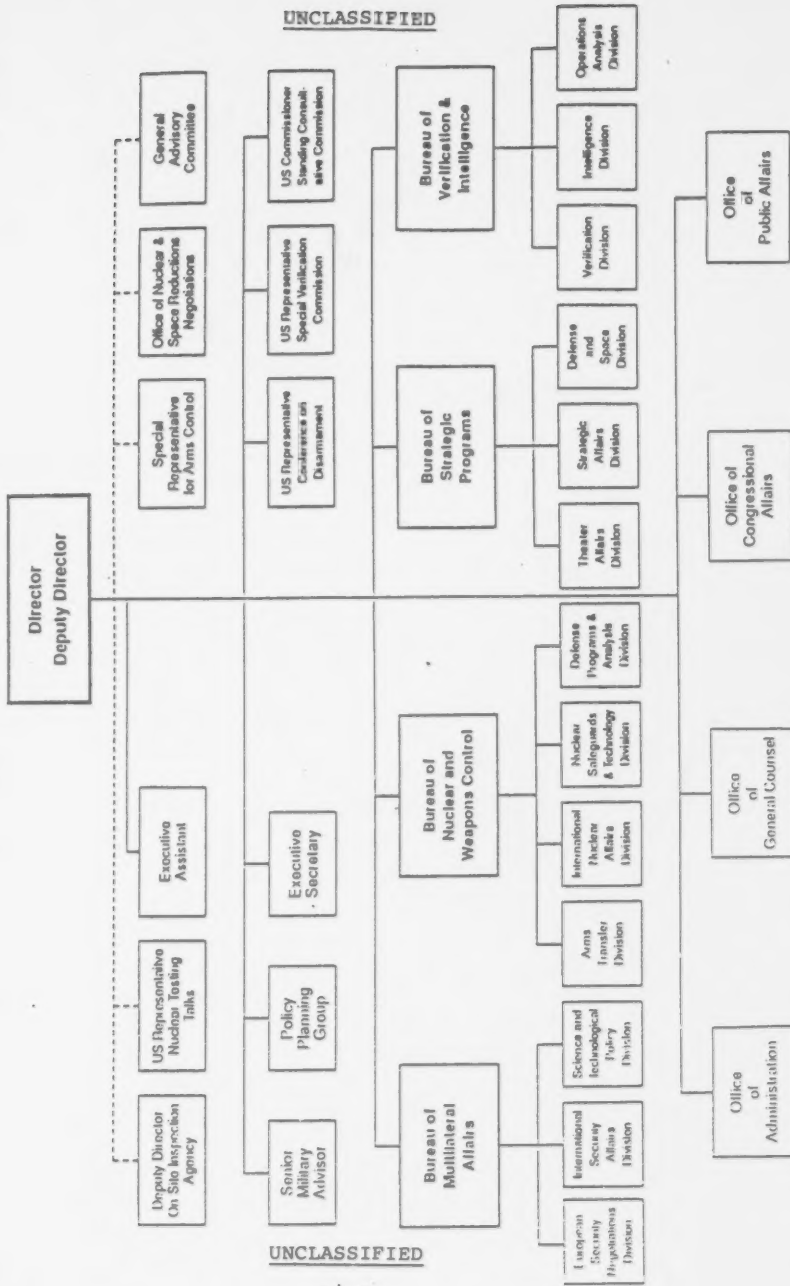
-- ACDA has made progress in strengthening internal controls in both Washington and Geneva in response to earlier recommendations by OIG auditors (OIG Report ACDA-8SI-002, September 1988); however, deficiencies remain that must be corrected.

This inspection took place in Washington, D.C.; Geneva, Switzerland; and Vienna, Austria, from January 3 to March 3, 1989. It was conducted by Senior Inspectors James E. Goodby and Gordon L. Streeb, and Inspectors Donald Colin, Edward W. Linhart, Anne Pinkney, William B. Pogue, and Richard L. Skinner.

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UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

(December 31, 1988)



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OFFICE OF INSPECTOR GENERAL

INSPECTION OF THE
U.S. ARMS CONTROL AND DISARMAMENT AGENCYTABLE OF CONTENTS

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OFFICE OF INSPECTOR GENERAL

INSPECTION OF THE
U.S. ARMS CONTROL AND DISARMAMENT AGENCYI. INTRODUCTION

This inspection is the first performed on ACDA. It resulted from congressional action (P.L. 100-213, December 24, 1987) which established an Inspector General of ACDA, an office which had not existed previously. In the circumstances, a brief overview of the Agency is in order.

ACDA was established by an Act of Congress on September 26, 1961*. Congress determined that ACDA should:

"...have such a position within the Government that it can provide the President, the Secretary of State, other officials of the executive branch, and the Congress with recommendations concerning United States arms control and disarmament policy, and can assess the effect of these recommendations upon our foreign policies, our national security policies, and our economy."

To assist the Director of ACDA in fulfilling this responsibility, Congress stipulated that the Director should:

"...attend all meetings of the National Security Council involving weapons procurement, arms sales, consideration of the defense budget, and all arms control and disarmament matters."

The Director of ACDA, Congress has directed, should be:

"...the principal adviser to the Secretary of State, the National Security Council (NSC), and the President on arms control and disarmament matters."

*The Act has been amended several times since 1961.

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"The Director should, under the direction of the Secretary of State, have primary responsibility within the Government for arms control and disarmament matters."

In fact, ACDA does not have now, has not had for the past decade, and probably never has had primary responsibility within the U.S. Government for arms control and disarmament matters. Arms control, when it is serious, is Presidential business. All Presidents since 1961 have managed serious arms control through mechanisms which may loosely be described as "the NSC process." Presidents sometimes have emphasized White House management of national security policy, with the help of their advisers for National Security Affairs and sometimes have opted for a more decentralized Cabinet-level system of policy making. In either case, the President and Cabinet-level advisers have felt able to come to their own conclusions about arms control policy without reference to ACDA. The President's Advisers for National Security Affairs, Cabinet secretaries concerned with national security, and other major advisers, such as JCS and DCI, long ago equipped themselves with their own arms control experts. Arms control has now become an integral part of the business of the U.S. Government, and all national security and foreign affairs agencies are heavily involved in it. In a way not foreseen in 1961, perhaps the intent of Congress has been realized after all.

One result of elevating arms control to greater prominence on the national agenda, however, has been the end of any hope that ACDA could be the central repository of expertise on arms control. Other government agency heads -- the members of the NSC in particular -- are not content to rely exclusively on ACDA for negotiators, advisers, researchers, and inspectors. No Secretary of State has been prepared to defer to anyone other than the President on such a vital element of East-West and Alliance relations as arms control negotiations. No Secretary of Defense has willingly surrendered the authority over defense budgets to anyone other than the President, certainly not to a sub-Cabinet official in another agency. JCS would not and could not give carte blanche to anyone to judge the risks of reduced or altered military force structures. Even if ACDA were substantially larger than its present size of roughly 200 persons, and even if the Director of ACDA were granted Cabinet status, it could not fulfill completely the ambitious mandate given it by Congress.

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Does this inability to meet the original congressional mandate mean that ACDA should be dissolved, folded into the State Department, or perhaps made an agency of the Executive Office of the President? The inspectors do not believe so. They believe the best arrangement is the existing one of a semiautonomous agency to perform the substantial functions assigned in 1961, and modified since that date. The case rests on practical grounds.

An ACDA along the lines of USTR is a possibility, but it is doubtful whether other agencies would concede to it the central role in arms control that the USTR plays in all trade matters. The White House needs arms control experts on the NSC staff, but five to 10 persons is probably the maximum it could absorb. In any case, the NSC staff probably should not be distracted of the operational responsibilities that accompany arms control research, negotiation, and implementation. Nor could this function devolve to DOD, since the Congress obviously wanted such arms control efforts to be at least somewhat independent of DOD, in order that a special arms control perspective could be brought to national security issues.

The Secretary of State needs an in-house capability to support arms control policy making and negotiation. Theoretically, the Department of State could absorb ACDA without large disruptions. The State Department already has one bureau (PM) which dedicates a significant part of its resources to arms control, and there are other State bureaus which also include arms control experts. The size of ACDA is not unlike that of some State Department bureaus.

Arms control, however, is a field which is interdisciplinary and is increasingly concerned with operations. It requires a mix of experienced political, technical, and military experts with a capacity to conduct state-of-the-art quantitative analyses. Perhaps more importantly, strong centralized management is required to integrate the many functions that constitute arms control. The U.S. Government needs someone who can do this on a full-time basis. Ideally, this person should be the Director of ACDA. For example, now that the Soviet Union has accepted on-site inspections as a part of major arms control agreements, arms control involves the direction and operation of inspection organizations which operate not only overseas but also in the United States.

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A Secretary of State clearly must have access to technical analyses and the reports of inspections, which is possible without the burden of staffing and managing operations of these types by having a special relationship with a semiautonomous agency which can provide technical and other advice -- precisely what the legislation creating ACDA contemplated. The Congress made it clear that the Director of ACDA was to have a close working relationship with the Secretary of State, a relationship different in kind from the Director's relationship with any other Cabinet officer. To underscore this, the Arms Control and Disarmament Act several times specifies that the Director of ACDA shall carry out these functions "...under the direction of the Secretary of State."

The relationship between the Director of ACDA and the Secretary of State has not always been what the Congress seemed to intend. Secretaries of State have not always seen Directors of ACDA as their principal advisers on arms control and disarmament. ACDA Directors have not always considered that they should act under the direction of the Secretary of State. This state of affairs seems to have existed through most of the 1980s. Secretary of State Shultz relied heavily on Ambassador Paul Nitze as his principal adviser on arms control and disarmament. Until the last year of the Reagan Administration, ACDA Directors seemed to place more emphasis on their mandate to provide advice to the NSC and the President than on their obligation to serve under the direction of the Secretary of State.

This choice by previous ACDA Directors was a major factor contributing to the inability of ACDA in recent years to carry out at least one of its primary functions, that of "preparation for and management of United States participation in international negotiations in the arms control and disarmament field." In managing U.S. foreign policy on behalf of the President, nearly all the Secretaries of State since 1961 have sooner or later entered personally into arms control negotiations with the Soviet Union. Conducting relations with Moscow has been one of the President's and, hence, one of the Secretary's main concerns. In those relations, arms control has been close to the top of the agenda. Very few Secretaries of State have been -- or will be -- ready to support ACDA's preeminence in arms control negotiations with the Soviet Union, especially if an ACDA Director chooses to neglect the stipulation of Congress regarding the relationship between the Director and the Secretary.

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It is not a simple matter to prescribe how the congressional will should be implemented in practice; no organization chart can resolve the human subtleties involved. An analogy suggested by a number of people interviewed for this report was that the Director of ACDA should be to the Secretary of State what JCS is to the Secretary of Defense. This analogy (however inappropriate in scope and scale) was intended to suggest that the Director and the Secretary should work closely together in developing arms control policy; the two (and, of course, their staffs) should coordinate their positions prior to entering the interagency arena. But, if the Secretary and the Director fail to reach agreement, the Director should exercise the obligation mandated by Congress of advising the President directly. This is far from being a complete answer to the question of how the Secretary and the Director can avoid the frictions and tensions which have troubled State-ACDA relations in recent years. Nonetheless, agreement between the Secretary and the Director of ACDA on this kind of relationship would better serve the President's interests. It is certainly better than uncertainty about ACDA's role, which is corrosive to ACDA's ability to do its job, and ultimately damaging to the Administration.

In sum, the decision taken by the Congress and the Executive in 1961 to establish ACDA and to give it the position in the U.S. Government described above remains essentially correct even though ACDA has not succeeded in having "primary responsibility within the Government for arms control and disarmament matters." Given the position ACDA occupies in the U.S. Government, and the importance of arms control on the national security agenda, ACDA never had a chance of achieving primary responsibility for arms control and disarmament; however, ACDA can be strengthened to perform more effectively the tasks that it can be reasonably expected to perform, which is the central conclusion of this inspection.

This has been a "baseline" inspection of ACDA, i.e., it provides an overview of how well the Agency implements arms control policies, an assessment of whether it manages resources efficiently and economically, and an evaluation of internal controls within the Agency. The inspectors took cognizance of well-known past problems of ACDA, but focused primarily on how it is functioning now, and how it can improve its operations in the near term. The inspectors note that the Director of ACDA

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agreed enthusiastically with the Inspector General's decision to conduct this baseline inspection and cooperated generously with the inspectors. The Director was already aware of many of the problems facing ACDA management and staff and, with the support of the Deputy Director, has been moving vigorously to improve ACDA's performance in all respects. In the position less than one year, the Director's tenure has been characterized by attention to the problems of internal controls, and by efforts to restore ACDA to a prominent role in the making of policy on arms control.

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II. FORMULATION AND IMPLEMENTATION OF POLICY

The inspectors assessed how well ACDA has been carrying out the four primary functions assigned to it in 1961, and those additionally assigned functions, such as the Director's roles in coordinating arms transfers and assessing the arms control impact of defense programs.

A. The conduct, support, and coordination of research for arms control and disarmament policy formulation.

ACDA's external research budget has declined dramatically in the last five years, from \$1,741,150 in FY 1984 to \$900,000 in FY 1989 (excluding the Reduced Enrichment in Research and Test Reactor -- RERTR -- program, managed by DOE, which is an appropriate arrangement), to \$200,000 in the FY 1990 request. The amount of money for research for the next fiscal year is miniscule in comparison with the arms control-related research budgets of DOD and DOE. A few tens of thousands of dollars added by ACDA to a research program funded by either of these two agencies will ensure ACDA a seat at the table and may allow it to influence marginally the direction of research in arms control undertaken by other U.S. Government agencies. This is a practice followed by ACDA, and it is a sensible use of limited funds. No one should be under an illusion, however, that this practice provides ACDA the kind of coordinating role in arms control research assigned to it by Congress and endorsed by Executive Order 11044 of August 20, 1962.

In an attempt to implement the ACDA Director's responsibility to coordinate research by other U.S. Government agencies, the Arms Control Research Coordinating Committee (ACRCC) was established in October 1984. This committee, chaired by ACDA, has representatives from the Department of State, the Office of the Secretary of Defense, JCS, DOE, NSC staff, CIA, and NASA. Aside from obtaining input from these agencies about ongoing and completed external research into arms control-related topics, ACDA does not now play an active role in coordinating research conducted by these agencies. The

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ACRCC meets only one or two times a year and, at most, forms a basis for a system of contacts throughout the year, i.e., agencies may invite representatives of other agencies to contractor evaluation sessions, may share research products on an ad hoc basis, and may assist ACDA in preparing its annual report to the Congress on arms control research. ACDA has little, if any, influence over research priorities that may be established by these other agencies. Even ACDA's reports on arms control research being conducted by the U.S. Government are overshadowed by glossier reports published by other agencies (e.g., DOE).

The inspectors were impressed by ACDA's practice of using -- albeit on a very limited basis -- quick reaction tasking contracts. These contracts (Basic Tasking Order Contracts) enable ACDA to have easy access to expertise outside the government, and to obtain quick responses to urgent questions. This practice is useful, and it should be the model for ACDA's research efforts generally.

It must be admitted, however, that even these shrewd and sensible methods of leveraging the limited research funds available to ACDA do not come anywhere near giving ACDA the role in external research that the Congress may have originally intended when it asked the Director "to exercise his powers in such a manner as to insure the acquisition of a fund of theoretical and practical knowledge concerning disarmament." ACDA's own research funds at present levels are of marginal value, both to the Agency and to the U.S. Government. The likelihood of ACDA's assuming a meaningful role in coordinating research is limited. To the extent that national security and foreign affairs agencies can persuade OMB and their congressional committees that they need research money for arms control, ACDA's ability to coordinate arms control research will be correspondingly diminished. Given ACDA's small size and research budget (a condition likely to be continued unless the Administration and Congress shift research funds to ACDA from other agencies), there is no way that ACDA can influence to any significant degree the way other government agencies spend Federal research dollars.

In fact, external research is not valued as highly within ACDA as are other operations. When necessary and possible, ACDA diverts external research funds to other purposes. A

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former Director of ACDA in testimony to Congress not long ago indicated a preference for in-house research to that done outside the Agency. If it comes to a budget crisis, ACDA management would probably favor more personnel over keeping even the present limited research funds. Given the marginal role ACDA can expect to have in influencing U.S. Government arms control research, it might be justified in such a decision.

It must be observed that the picture is not much brighter regarding internal research and analysis. The previous Administration did not emphasize exhaustive analysis of policy issues to the same extent earlier Administrations did. With lessened demand, government agencies, including ACDA, saw little point in spending scarce resources on internal research. ACDA's internal research and analysis capability was deliberately cut back. The inspectors believe, however, that even given these circumstances, arms control research within ACDA, for reasons cited below, has not been up to expected standards. Moreover, given the fact that ACDA's external research budget is unlikely to grow dramatically, it becomes more essential for management to improve internal research capabilities as much as possible.

The issue of chemical weapons illustrates ACDA's inattention to research. President Bush signaled his interest in a global ban on chemical weapons in 1984 when, as Vice President, he personally introduced at the Conference on Disarmament in Geneva a U.S. draft treaty banning chemical weapons. A White House directive issued in early 1984 required an effort to research verification measures for possible chemical weapons agreements. Despite these clear mandates, however, ACDA did not mount a significant research and analysis program, either internally or externally, to improve the verifiability of the proposed prohibition.* As another example, in 1986, NATO foreign ministers called for negotiations with the Warsaw Pact on reductions in conventional forces in Europe. Inasmuch as the Warsaw Pact countries also announced their interest in such negotiations, it was obvious that sooner or later these negotiations would get underway. It

*An encouraging recent development, however, is a \$50,000 verification experiment at a West Virginia chemical plant.

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soon became clear that the parameters of the new negotiations would be different from those of the MBFR negotiations, which began in 1973. ACDA has now started work on how to verify conventional arms reduction in the Atlantic to the Urals zone of the new East-West talks, but the new talks are already underway and verification efforts are lagging badly.

Aside from the generally inhospitable climate toward research and analysis mentioned above, other reasons cited internally for ACDA's inattention to research and analysis on forthcoming arms control negotiations were: lack of emphasis by ACDA management; shortage of personnel; preoccupation with compliance problems related to the 1972 ABM Treaty, and during 1988 to the INF Treaty; opposition by OSD for policy reasons; and an opinion held by some in ACDA that verification studies, especially for a chemical weapons ban, would add little to existing knowledge.

The last of these arguments could best be addressed by experts; however, knowledgeable persons have told the inspectors that some recent technical developments are worth exploring. In any case, the almost total neglect of verification research for two negotiations high on this Administration's list of arms control priorities could only be justified by exigencies caused by a severe lack of qualified personnel. Indeed, this rationale is partially correct, and measures need to be taken to clarify this issue.

The inspectors concluded that management should place more emphasis on research and analysis in general, and verification research in particular. Verification research and analysis within ACDA needs to get ahead of the "power curve." More thought should be given to ongoing and possible future arms control negotiations in order to push the parameters of verification measures as far out as possible. Obviously, it is essential to monitor compliance with existing treaties, but it is also critical that the U.S. Government be properly prepared for possible new treaties. When time and personnel resource limitations place the two requirements in competition with each other, the United States is not well served. To correct this, ACDA management needs to make some organizational changes to refocus and strengthen the work of its Bureau of Verification and Intelligence (VI), such as adding a new division to the Bureau and improving the technical qualifications of the staff

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of VI's current Operations Analysis Division. The inspectors also recommend moving the intelligence function closer to the top management of ACDA, in order to relieve VI of the management of this function, to place the Office of Intelligence closer to the Office of Security, and to exploit the counterintelligence function more fully.

B. The preparation for and management of U.S. participation in international negotiations in the arms control and disarmament field.

1. The Role of the ACDA Director

Some Directors of ACDA have served as chief U.S. negotiators for the most important arms control negotiations -- generally, but not always, the strategic nuclear arms talks. This was the case with Directors Foster, Smith, Warnke, and Earle. The other Directors also represented the United States in various arms control negotiations, but not on a sustained or continuing basis. The practice of "double-hatting" ACDA Directors has the following advantages:

- It provides the Director with an additional link to the President and the Secretary of State;
- It accentuates the negotiating role of ACDA and gives added weight to the Director's views on negotiating issues; and
- It enables the Director to deal directly with leading negotiators from other countries.

There are offsetting disadvantages:

- Most seriously, it detracts from the Director's ability to manage both the arms control process and the Agency itself;
- It requires the delegation of considerable management responsibility to the Deputy Director, who may then be overextended; and
- It necessitates a choice of which negotiations to conduct, a more complicated question now than in the past.

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The "double-hatting" issue is a judgment call which each Administration will make on the basis of personalities and personal preferences. Overall, however, the disadvantages of having the ACDA Director also serve as a chief negotiator outweigh the advantages. Managing the arms control policy process, including handling relations with Congress and the public, and, at the same time, overseeing the operations of ACDA, make up a full-time job. This is especially the case now that monitoring treaty implementation is becoming an important and time-consuming task for ACDA. No longer is negotiation the only serious foreign affairs work with which ACDA should be seized. What was appropriate in the 1960s and 1970s, is no longer justifiable. In addition, unlike earlier times, there are at least two or three negotiations which can claim preeminence. For an ACDA Director to choose one over another would be difficult, and the choice would inevitably be viewed as a political statement by the U.S. Government.

2. General ACDA Management of Negotiations

In recent years ACDA has helped to prepare for negotiations and, in the backstopping sense, it has played an important role in managing negotiations. Where ACDA has fallen short of the congressional goal for the Agency, it has been for reasons related to its modest position in government rather than primarily to internal failings. ACDA was a participant in interagency deliberations in the last Administration when Cabinet departments chaired these NSC-related meetings, but ACDA chaired only one of the interagency committees concerned with arms control. In the Bush Administration, the NSC staff will chair interagency meetings dealing with arms control. The participants in the arms control process supported this NSC staff role (even before the decision), believing that the NSC staff can be the best "honest broker" in formulating policy guidance. ACDA's position in the process, however, is not likely to change to any extent.

If ACDA and the Department of State were to follow the JCS-Secretary of Defense analogy alluded to above, ACDA and State should make a greater effort to coordinate positions in preparation for NSC meetings. It could be helpful if the Secretary of State and the Director of ACDA were to meet privately on a regular schedule, at least once a week. This closer coordination need not reduce ACDA's role in preparing for negotiations, but might enhance it.

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According to all accounts, ACDA's backstopping function has been handled professionally. This function consists of "answering the mail" from U.S. delegations in Geneva and elsewhere. The usual practice is for ACDA to draft a response to a delegation's request for guidance or information, and then to circulate it for interagency clearance. Interagency concurrences sometimes require working level meetings run by ACDA. The ACDA personnel charged with backstopping are often those who have been involved in a particular negotiation for a long time, and who are thoroughly familiar with the issues and with negotiating needs. These activities are managed by the two bureaus which are designed to support negotiating forums, i.e., the Bureau for Multilateral Affairs (MA) for U.N. matters, the Conference on Disarmament in Geneva, and the two conventional arms control negotiations in Vienna; and the Bureau of Strategic Programs (SP) for INF (now completed), START, and Defense and Space talks in Geneva.

There is some confusion as to which negotiations to assign to which bureau. SP at one time ran the Nuclear Test Talks (NTT), but now this is done by MA, although most of the action is U.S.-Soviet, not multilateral. It would be better for reasons of organizational logic to move responsibility for the NTT to the SP Bureau.

The Bureau of Nuclear and Weapons Control (NWC) also engages in international discussions, but does not backstop negotiating forums (except for periodic review conferences on the NPT Treaty). The Congress has repeatedly expressed its concerns about the proliferation of advanced, sophisticated weapons technologies, whether nuclear, biological, chemical, conventional or missile. President Bush has expressed his concerns about the same subjects. The NWC Bureau should be strengthened to deal with these problems. ACDA could also use one of the two Special Representatives for Arms Control and Disarmament Negotiations provided by ACDA legislation, as a "trouble shooter" to deal with any international proliferation issues which fall within NWC's mandate.

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3. Delegations to Arms Control Negotiations

There is also the question of where, in the array of U.S. Government arms control organizations, the several U.S. representatives to various negotiating forums should be located, to whom they should report, and what should be their relationship to the President and the Secretary of State. The latter individual, it should be noted, has typically handled key aspects of arms negotiations, sometimes with and sometimes without the Director of ACDA. At present, the only U.S. representatives who are unambiguously assigned to ACDA and report to the Director are the representatives to the Conference on Disarmament (CD), the Standing Consultative Commission (SCC) and the Special Verification Commission (SVC). All the others are assigned to various components of the Department of State. Under an agreement signed by the then Deputy Secretary of State and the then Director of ACDA on March 8, 1985, all personnel assigned to the Office of Arms Reduction Negotiations in Geneva (apart from Ambassadors Kampelman, Tower, and Glitman) were to be assigned to ACDA on detail, and the Department of State was to be reimbursed by ACDA "for all expenses in connection with said office, including salaries, transportation, housing, and allowances in Geneva, per diem, and similar expenses." Thus, monies appropriated by Congress for ACDA supported these key Geneva negotiations, but ACDA had no jurisdiction over the chief negotiators. This arrangement has created a number of management problems, and should be reviewed. (See Section IV.)

As a part of the review of support arrangements with the Department of State, ACDA and State should consider the general status of delegations. Even though policy may be tightly coordinated through the NSC process, confusion over the management of and administrative support for the delegations in Geneva has the potential for adversely affecting important negotiations. There is a strong argument to be made for managing and administering all arms control delegations through the Director of ACDA. This would have the virtue of coordinating all reporting to the Secretary of State in one channel, in lieu of the variety of channels now followed. At a minimum, all delegation chiefs should be carried as "direct employees" of ACDA, thus ensuring centralized management control by the Director of ACDA. Without such control, the ACDA Director will have difficulty managing the administrative practices of delegations in Geneva and Vienna.

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C. The dissemination and coordination of public information concerning arms control and disarmament.

Henry Kissinger referred recently to arms control as a "cult administered by a priesthood of esoteric technicians advancing arcane formulas." While acknowledging the likelihood of exaggeration for effect, there is still a grain of truth in this. The public at large may never acquire the kind of understanding the Congress presumably sought when it charged ACDA with disseminating and coordinating public information about arms control. Those members of the public who wish to follow arms control developments closely may not find ACDA publications to be both timely and complete; expenditures on public affairs in ACDA (with some exceptions, e.g., a recent publication entitled Essays on Arms Control) may not be most beneficial to the public. ACDA has taken no steps to measure and assess the utility of its various publications. What evidence there is, is not very heartening.

The unit within ACDA directly tasked with the dissemination and coordination of information is the Office of Public Affairs (PA), which correctly recognizes that the most authoritative and effective spokesperson for the Agency is its Director. The head of PA has concentrated mostly on Agency-wide public affairs efforts, including keeping the Director up to date on public and media issues, and ensuring that speeches, interviews, and other public efforts of the Director are as effective as possible.

Unfortunately, preoccupation with this aspect of public relations efforts has meant that some aspects of the day-to-day work have been neglected. Some, but by no means all, of this situation can be blamed on the failure to fill the Deputy Director position in PA. Relocating the largest portion of the office to other quarters 12 blocks away is also a contributing factor. The difficulties are rooted in the inability of PA management to provide leadership and supervision to a fractious and uneven group of employees.

The Agency does issue information of public interest. It has several congressional requirements to provide reports, the unclassified versions of which could inform an interested public, if the reports are known to exist. These include, but are not limited to, an annual ACDA report to the Congress, a

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report covering the adherence to and compliance with agreements, and a comprehensive compilation of arms control and disarmament studies. Most of these reports are the products of other parts of the Agency.

PA itself produces a rather small number of publications at the present time. One, The ACDA News, goes out daily to a mailing list of a little over 200 people, as well as to the ACDA staff, to keep them abreast of what is being said in a variety of newspapers. Another, Arms Control Update, appears every two to three months and contains a compilation of the most important articles on arms control during the period. Arms Control Update is one of the few new additions to PA output. A monograph entitled Essays on Arms Control and a pamphlet on the INF Agreement are the others. Most of the remaining publications are one-time copies of material such as the Director's speeches and issues briefs. For a variety of reasons, two major publications, Documents on Disarmament and Arms Control Agreements, are now coming out several years late.

In addition to the publications, ACDA experts, in addition to the Director, give briefings and make public appearances in Washington and throughout the United States. Although well done, these public speaking efforts appear to be reactive rather than part of any systematic outreach program.

The inspectors recommend that there be a reorganization of PA to make optimal use of its staff, and that the office be relocated into one area. Further, two PA functions -- the Library and the Historian's Unit -- should be reviewed, and, if ACDA cannot manage them, they should be transferred to another agency (e.g., the State Department) where their usefulness can be enhanced. Focus also should be given to the continuing need for some of the reports now required by Congress.

- D. The preparation for, operation of, or as appropriate, direction of, U.S. participation in such control systems as may become part of U.S. arms control and disarmament activities.

This mandate given to ACDA by Congress in 1961 was expanded in subsequent years by the additional language included in Sections 37 and 52 of ACDA's basic legislation. Both Sections

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vested special responsibilities in the Director of ACDA -- and in the President -- for advising the Congress, inter alia, on certain aspects of verifiability and compliance.* This report already has noted the insufficiency of timely research and analysis regarding verification.

The need to augment ACDA's capacity for conducting research into issues relating to arms control verification has been discussed above. Matters of compliance -- with responses to violations of treaties -- should be handled directly by the Director's office, in order to enhance still further its importance on the ACDA agenda. The Congress has placed the legal responsibility for compliance matters at the level of the Director -- or higher -- and this recommendation would further institutionalize that decision. The compliance function must of necessity be a high-level activity of the U.S. Government, and only the Director of ACDA, personally, can properly interface at such levels of government. Legislated requirements for reports on Soviet compliance with, and U.S. implementation of, arms control agreements have become major tasks of interagency coordination. Important also is the task of coordinating negotiations with the Soviet Union related to treaty implementation, either in diplomatic channels or through compliance forums like SCC and SVC. In addition, the inspectors noted suggestions made by private specialists (James Hackett, Heritage Foundation; Sidney Graybeal, Systems Planning Corporation (SPC); and Michael Krepon, Carnegie Endowment) to

*Four terms of art should be distinguished here:

Monitoring: Collecting data regarding activities relevant to treaty implementation.

Verification: Ascertaining that certain treaty obligations are being observed.

Compliance: Deciding how closely treaty signators are conforming to treaty provisions.

Response: In the words of the legislation, "to seek a resolution of the difficulty" if there is a compliance problem and, if necessary, "to redress any damage to United States national security and to reduce compliance problems."

These activities are listed in ascending order of the level at which decisions concerning these activities must be taken in the U.S. Government.

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the effect that there should be an office of compliance established in the Executive Office of the President (presumably in the NSC). This suggestion is worthy of serious consideration.

At present, implementation and compliance matters are managed partially by the VI Bureau, which attempts to track and assess compliance with past agreements, and partially by the bureaus that manage negotiations (MA and SP), with personnel who participated in the negotiations retaining residual responsibility for monitoring implementation. ACDA needs a stronger, more centralized approach to implementation matters. Moreover, it seems advisable to focus the attention of the restructured Verification and Research Bureau (now VI Bureau) more toward researching future verification possibilities. As regards the role of the "negotiating" bureaus, the inspectors question the concept of having persons who negotiated agreements also be responsible for monitoring the implementation of those agreements; while the negotiators should be available to provide the background and expertise on the negotiating history, they should not also be the judges and administrators of implementation. Therefore, this report recommends that there be a new office, "Arms Control Operations," attached directly to the Director's office, to manage implementation and to integrate ACDA's conclusions on compliance matters. The U.S. representatives on the SCC and SVC should either be a part of, or be closely connected to, this new office. The Director of ACDA, with such a centralized support staff for administering the implementation of treaties, would be an effective contributor to the President's decision-making process on implementation issues.

There is another issue concerning verification which needs further study and decision at a high level. This is the question of the future functions and status of OSIA. The FY 1990 funding request for OSIA is \$50 million (as compared to the FY 1990 budget request of just over \$30 million for ACDA). It is assumed that OSIA will also manage monitoring of a START agreement, and, possibly, other future arms control agreements. It was established in DOD originally mainly for reasons of funding and ready access to logistical support. The chief civilian official charged with managing OSIA is the Under Secretary of Defense for Acquisitions. The current Director of OSIA is a very able Army brigadier general. Of course, OSIA

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could be maintained in its current configuration, for which there are practical justifications primarily related to the involvement of the military Departments and their readiness to supply personnel and equipment. Moreover, the Under Secretary for Acquisitions is a logical interface with defense contractors also affected by the implementation of an arms control treaty. Against that is the argument that arms control inspection is not inherently a military function, and, therefore, the operations ultimately should be placed in civilian control and provided with an independent operating budget.

There are compelling reasons why ACDA should have a more direct role in the management of OSIA (beyond the naming of an OSIA Deputy Director, which it now does). Recent developments in arms control, including the Stockholm Document of 1986 and the INF Treaty of 1988, as well as U.S. proposals for future treaties, clearly indicate that arms control is going to become a much more operational activity than in the past. If ACDA is to fulfill its statutory responsibility for the implementation of arms control agreements, it should shift the weight of its efforts more toward implementation. The negotiation of arms control agreements will continue to be a major activity, but the INF experience has shown that there will be a government-wide need for coordination of the implementation of arms control agreements. If ACDA does not assume this responsibility, its very reason for existing will be severely eroded.

A number of tasks related to the future of implementing a treaty are involved, quite apart from compliance judgments. The largest of these tasks by far is organizing U.S. inspections in the U.S.S.R. and Soviet inspections in the United States, carried out in compliance with the INF Treaty. A second and related task is the levying of requirements for the use of monitoring tools, including inspections and other assets. Also, there are U.S. operational activities carried out under the terms of arms control agreements, such as the process of eliminating specified weapons systems and terminating production of those systems. Given ACDA's legislated responsibilities for the function of treaty implementation, it should take the lead in managing these tasks. Although the inspectors have not made a formal recommendation to this effect, they suggest that high-level

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U.S. Government consideration should be given to creating a second Deputy Director of ACDA with broad responsibilities for the implementation of treaties. This Deputy Director of ACDA would be given certain executive responsibilities related to monitoring and implementation of arms control, but would draw staff support from existing ACDA bureaus. This officer should also chair an interagency steering group which would ensure policy coordination for treaty implementation, but definitely would not be responsible for decisions regarding other countries' compliance with treaties (which would mean mixing operational responsibilities with judgmental responsibilities and should not be included in the position). The Deputy Director for implementation should be the "police officer," not the judge and jury.

This ACDA Deputy Director would also have the title of head of OSIA, with an operational chief of staff who would manage the day-to-day activities of OSIA. While ACDA would thus manage OSIA, OSIA would continue to have a separate, distinct budget, and would not be combined with ACDA funding and personnel. In addition, the Deputy Director in charge of OSIA would be given oversight authority over DOD actions with respect to U.S. treaty compliance to ensure that they are consistent with agreed treaty interpretations. This description of an organizational change in current arrangements is illustrative, and other bureaucratic configurations could also be devised. The main point is the need to give ACDA a larger role in the new world of arms control implementation.

OSIA currently receives policy guidance from an interagency INF steering committee chaired by the NSC staff, which is supported by an interagency support group chaired by ACDA. OSIA receives management guidance directly from the Under Secretary of Defense (Acquisitions). There is a need to clarify lines of authority, and to distinguish between decisions that are (a) properly interagency in nature; (b) those that can best be made by OSIA in conjunction with just its parent agency; and (c) those that could be left to the commanders and staffs in the field. Even before the ultimate decision on the best location within the U.S. Government for OSIA, ACDA should be playing a stronger, more influential role in ensuring that guidance to OSIA is timely and complete.

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III. RESOURCE MANAGEMENT

ACDA's primary resource is its people. The inspectors were impressed by the quality and motivation of most ACDA personnel. There is a commonly-held view among ACDA staff that the work they are performing on behalf of the American people is truly important. There are serious personnel problems, however, which have developed over a period of several years, and which cannot be easily corrected. On an urgent basis, ACDA should develop a personnel system which not only will better serve ACDA as an institution, but will better serve its staff.

Some problems are inherent and cannot be eliminated in a small agency which deals with a highly politicized subject. Many top positions will always be reserved for presidential appointees and thus upward mobility will be limited for most ACDA career-service employees. Extensive use of detailees from other agencies also affects job possibilities for permanent ACDA staff. Even given these inherent limitations, the current personnel structure of ACDA is poor, at least partially due to past management decisions to solve personnel problems by manipulating the organization of the Agency. Measures are needed to improve the existing situation, including designing a better career ladder and a professional development program for career employees. A logical first step would be a comprehensive survey of ACDA staffing requirements and grade structure, but ACDA management also must begin thinking about its personnel requirements, and how to meet those needs by proper recruiting, use of other agency personnel on detail and training, and the development of career ACDA personnel.

ACDA always will need a mixture of technical expertise, including scientists and engineers. It is desirable that such people be located in several bureaus and offices, rather than in one bureau. There should be a greater concentration of technical personnel in the NWC Bureau, however, if heightened attention is going to be given to proliferation of advanced technologies. There also should be more technical personnel in the bureau dedicated to research and analysis. More scientists and engineers should be brought into ACDA for relatively short

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periods of time, i.e., one to three years, a practice already followed in ACDA. These experts are necessary because of their professions and familiarity with state-of-the-art technology. They also have good access to the latest technical information and can be a source of new ideas. Technically expert consultants may also be a useful way of reinforcing ACDA's technical analyses. The inspectors also recommend that the Director of ACDA be given a senior scientific adviser to help guide technical work in the Agency, and provide advice on external data resources.

Military officers should continue to be brought in as detailees to accommodate specific ACDA needs for expertise, not just because there are available positions. Military officers are expert in areas that ACDA must deal with professionally on a level equal to or better than other agencies. ACDA should review its professional needs on a continuing and regular basis to determine what military expertise it needs.

Similarly, FSOs sometimes are brought in as detailees to fill positions which require the type of professional background in negotiations and Alliance affairs that they can offer. For example, ACDA might meet one of its requirements (see Section 51 of the Arms Control and Disarmament Act) by seeking FSOs with Soviet experience and Russian language capability. This would also benefit the Department of State by providing more negotiating experience for FSOs who will be working in U.S.-Soviet relations during their careers. Nothing this systematic is being done now, due in part to the widely held perception among FSOs that detail assignments to ACDA are not career-enhancing.

The secretarial situation in ACDA requires the attention of top management. Secretarial morale is poor, and the breakdown in communication between secretarial and nonsecretarial personnel is widespread. ACDA management should create a task force of secretarial and nonsecretarial representatives to review the use and treatment of secretaries in the Agency.

ACDA management has not given sufficient emphasis to EEO and Affirmative Action goals. While there are a number of women officers in various positions, there are few professional career employees from minority backgrounds. Supervisors and employees (except for those who are themselves minority members) have only the vaguest notion of Agency efforts to pursue mandated EEO and Affirmative Action programs.

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Internal communication, both vertical and lateral, are barely functioning within ACDA. Very little information flows between bureaus (or between divisions within bureaus in some cases). ACDA management has not developed and disseminated goals and objectives to guide its staff. The system for recording coordination and final decisions is weak, resulting in ACDA representatives frequently arriving at interagency meetings with more than one "ACDA position." ACDA needs a stronger Executive Secretariat to centralize management of coordination (now divided between two separate offices), and to act as the operating arm of the Director.

Close attention to resource management by the Director and Deputy Director of ACDA is a critical element in fulfilling ACDA's mission and ensuring the well-being and vitality of ACDA. There have been serious problems in ACDA in the past with respect to the handling of security matters and with respect to administration of certain ACDA functions, e.g., Geneva operations. Such problems are being given top priority by both the Director and Deputy, but as will be evidenced by the Internal Controls Section of this report, much remains to be done. The Director's time is divided between overseeing the staff of ACDA and managing ACDA's external relations. If the Director were to streamline this internal management process, there could be more time devoted to working with Congress, participating in policy formulation, and consulting with foreign governments. At present, a disproportionate amount of the Director's time is spent on internal ACDA matters. The Deputy Director position should be enhanced to reduce some of the load on the Director.

The functions of the Deputy Director include managing the Agency in the Director's absence. In a relatively small agency, the important resources provided by a senior and experienced official can become a quite important asset for the Director. In light of the problems that have occurred in the past, the inspectors recommend that the Director assign direct responsibility for running the Office of Administration to the Deputy. Because of the difficulties of managing high-level U.S. negotiators in Geneva, the administrative officer in Geneva often needs the support of a higher-level responsible official in ACDA.

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Overseeing security is clearly an ACDA front office responsibility, and intelligence (especially its counterintelligence role) is a closely related part of it. The Deputy oversees the security operation as part of normal responsibilities. This arrangement should be continued; both the Assistant Deputy Director for security and the Intelligence Division (currently in VI) should report directly to the ACDA Deputy Director. Until PA is reorganized and operating as the management of ACDA would wish, the Deputy should also have a hand in its management.

One of the most valuable services ACDA provides to arms control negotiations is the assignment of attorneys from the Office of General Counsel (OGC) to support major arms control talks. Delegation members were universal in their praise of the competence and dedication of this small group of lawyers; good counsel is viewed as an absolute requirement for successful negotiations. The OGC staff is too small. A shortage of lawyers and of support staff results in several ongoing and newly begun negotiations not receiving adequate legal support.

ACDA does a fairly good job of managing its relations with the Congress. The Director has effective and appropriate contacts with the relevant committees; the situation is currently acceptable, but the recent move of the greater part of OCA staff to a building 12 blocks away from the rest of the Agency has inevitably affected its operations.

In addition to OCA, PA and its contract section are located in buildings separate from the ACDA headquarters. This dispersal of staff creates a severe operating handicap for the Agency and weakens its external working relationships, a problem which will be exacerbated in the future, should ACDA increase its staffing levels as proposed in its FY 1990 budget submission to Congress. ACDA and State should work out the space problem so that all component parts of ACDA can be located together in the main Department of State building, or ACDA should seek a separate facility, easily accessible to State, in which it can centralize all of its operations. (If the latter option is chosen, such a move will impact upon the review of the functions of ACDA's Library and Historian's Unit, as recommended above.)

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IV. MANAGING ARMS CONTROL NEGOTIATIONS
IN GENEVA AND VIENNAA. Geneva1. Structure of Delegations:

Arms negotiations in Geneva are conducted under the auspices of eight delegations: The Conference on Disarmament (CD, which now also encompasses Chemical Weapons); the Standing Consultative Commission (SCC for SALT); the Special Verification Commission (SVC for INF); Nuclear and Space Arms, and two supporting groups for Defense and Space (D&S) and Strategic Arms Reduction Talks (START); Nuclear Testing Talks (NTT); and Anti-Ballistic Missile (ABM) Treaty Review. Each of these delegations usually consists of a head of delegation or chief negotiator, with the rank of ambassador; a deputy; an executive secretary; and members and advisers, with each delegation supported by interpreters, translators, and secretaries. The delegation members are normally senior officers representing the Department of State, ACDA, OSD, and JCS; and DOE in the case of NTT. Advisers are supplied by these same agencies according to the particular skills required, supplemented by experts and scientists from such organizations as Livermore Laboratories, Sandia, and Los Alamos. The delegations vary in size from 15 to 25 members; conceivably, if all delegations were in Geneva simultaneously, there could be from 125 to 170 officials and their support staffs congregated there. Because the cost of supporting these delegations accounts for almost one-third of ACDA's budget, the effective management of operations in Geneva was an important aspect of the inspection.

Meetings are conducted in two settings. The Conference on Disarmament meets under the auspices of the United Nations and involves some 40 members from the usual U.N. configurations of the Western, Eastern, and Developing Country groupings. Numerous consultations are held within this context, both bilaterally and within the regional groupings. All the other arms control negotiations are held in a bilateral U.S.-U.S.S.R. setting, with meetings generally alternating between the sites of the respective permanent missions. The U.S. delegations are

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physically located in the building which also houses the U.S. Mission to the European Office of the United Nations and other International Organizations, while the CD delegation is in the Botanic Building, which also houses a few support elements of the U.S. Mission as well as the Geneva office of USTR. (The U.S. Mission units were moved to the Botanic building when it became necessary for security reasons to move all the bilateral arms control delegations to the U.S. Mission.)

Over the last few years, the U.S. and Soviet delegations involved in the bilateral negotiations have evolved a modus operandi whereby each delegation supplies refreshments for the delegations while hosting a meeting at its mission, and senior members of the delegation entertain each other frequently in small groups at lunches and dinners at local restaurants. Large cocktail parties are usually held at the opening of each new session and at its conclusion.

The amount of time any given delegation (or delegation member) is physically present in Geneva fluctuates depending on the state of the negotiations. In 1988, for example, the D&S delegation spent 10 out of the 12 months in Geneva, but whether there will be separate D&S talks at all in 1989 is in question; the ABM treaty review is normally held only once every three years; the SCC meets on a fairly regular schedule of four to eight weeks in the spring and again in the autumn; and so forth for each subject delegation. The number of U.S. Government officials that must be supported administratively thus varies widely and unpredictably throughout the year; there could be as many as seven or eight individuals of ambassadorial rank present at the same time.

Thus far, only a small number of delegation members are assigned to Geneva in a permanent rather than a temporary duty status. The 14 PCS staff includes the head of the CD delegation, a deputy, and a secretary; the head of the NTT delegation; and, most recently, the DOE representative on the NTT delegation. There are also four ACDA, one JCS, and four OSD administrative support personnel on PCS status in Geneva. All of these individuals occupy permanent quarters. In addition, 16 apartments are currently under lease for use by temporary duty personnel; seven by ACDA, two by State, two by JCS and five by OSD. (ACDA intends to drop the leases on two of its apartments as soon as they expire.) Most personnel on

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temporary duty make their own arrangements, an outgrowth of the fact that so many of these personnel have served on one or another delegation over several years, or have sought the advice of colleagues. Temporary duty quarters, therefore, include rooms in private accommodations, i.e., in apartments across the border in France and in a wide range of quarters in Geneva, ranging from \$30 to \$80 a day.

There is no clear record of why it was decided to assign five delegation members PCS to Geneva, except that it was anticipated that they would spend a substantial portion of the year there. The recent assignment of a senior DOE official on PCS to Geneva seems to have been taken for purely internal reasons. While DOE stated one of the factors underlying this decision was the sizable per diem being paid out for the extended periods this individual had been spending in Geneva, such rationale does not stand up under scrutiny. At current rates, per diem for a full 365 days in Geneva would amount to approximately \$56,000. A nice apartment in Geneva today costs around \$50,000. The individual residing in U.S. Government-leased quarters still draws half of the per diem allowance for food and miscellaneous expenditures, and the government is further obligated to provide furnishings and maintenance and to take care of utilities. An individual on partial per diem staying in a government-leased apartment would thus cost about \$80,000 to \$90,000 a year. On the other hand, someone assigned on PCS basis is entitled to all benefits -- living quarters allowance, cost of living adjustment, shipment of effects and a vehicle, travel of dependents, education allowance, etc., and the Agency must reimburse the State Department under the FAAS agreement for the administrative support provided. State Department figures suggest that the average cost for maintaining a person in PCS status is well over \$100,000 per year. (The cost of maintaining the head of the CD delegation was \$104,275 in FY 1988.) Clearly, assignments on a PCS basis are the least cost effective. Any decision to assign personnel PCS abroad must be weighed carefully and should consider the time the employee is expected to spend in the country, all the more so because that individual probably spends most of the time on temporary duty orders in the United States when the delegation is not in session.

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2. Administrative Support:

Even though it has become common parlance to refer to the arms negotiations delegations as "ACDA delegations," in actual fact, they are not. As the above indicates, the arms negotiations delegations participating in discussions in Geneva are comprised of individuals representing several U.S. Government agencies. Each draws on the parent agency for budgetary support and each thus follows that agency's rules regarding travel and service abroad. The small ACDA-employed administrative staff in Geneva, however, is expected to provide all delegations with the necessary infrastructural support to accommodate them, facilitate their travel, pay the bills, arrange for meeting rooms, and provide transportation around Geneva as necessary. The general impression is that if delegation members feel ACDA administrative personnel can supply a particular benefit, that assistance would be sought unless the parent agency's regulations provide a better one.

Agency representatives feel duty bound to represent their agencies' views on substantive matters as well, and, therefore, maintain direct lines of communication back to their respective headquarters. (One head of delegation noted to the inspectors that one of the first tasks when taking over the delegation was to bring some order into delegation behavior. Delegation members were using the position papers sent out by the interagency group backstopping the delegation in Washington to reopen the arguments that had theoretically been resolved during the thrashing out of the position paper in Washington by representatives of their parent agencies. Even more disconcerting, it was not unusual for differing views to be voiced by delegation members during meetings with foreign delegations.)

The ACDA staff, of course, cannot meet its obligations without close cooperation with the administrative staff of the U.S. Mission; herein lies the potential for cost effective cooperation as well as friction. The history of this relationship, at least up to a few months prior to the inspection, was characterized more by acrimony and grudging association than by genuine cooperation and integration. Viewed from the standpoint of the U.S. Mission staff, the arms control negotiators were interlopers who had taken over much of their building, forcing them into smaller offices, and

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requiring even the Ambassador of the Mission to request use of the Mission's ground floor meeting rooms from the ACDA staff. Delegation support staff have more privileges than staff members of the Mission (the result of a special Swiss law governing temporary versus permanent delegations). The delegations have access to official vehicles for authorized personal use; they have television and video recorders in many offices, larger representation funds, and save large sums of money out of their per diem payments. All of this created bad feelings and has had a negative impact on cooperation between the two administrative units. The previous ACDA administrative officer's propensity to do everything requested by the delegations without attempting to establish any rules or guidelines, or adherence to U.S. Government regulations, contributed further to the strained relations. On the other hand, the ACDA support staff often found it cumbersome working through the Mission's administrative section, especially its general services unit. The ACDA staff resented what they felt were bad feelings derived from the Mission's failure to appreciate the unique nature of the arms negotiations or the actions ACDA had to take in response to genuine security concerns.

The arms negotiators are provided traditional administrative support services by the U.S. Mission, i.e., budget and fiscal, general services, personnel, classified and unclassified communications systems, and security, and assistance with temporary lodging when requested. The ACDA staff itself supervises a motorpool of some 21 vehicles; oversees the expenditure of representation funds; prepares the meeting rooms, including refreshments, for bilateral meetings; keeps track of delegations and their local whereabouts; and, in general, sees to it that all the support the delegations require from the U. S. Mission is provided. Fortunately, with the arrival of a new administrative officer (who previously served in the same capacity) and the beginnings of tightened administrative procedures in response to the OIG auditors' recommendations (see OIG Audit Report ACDA-8SI-002, September 1988), cooperation between the U.S. Mission and the ACDA administrative staff has improved significantly. The unique nature of Geneva with the numerous different delegations constantly converging on it, and the relative weakness of the U.S. Mission GSO staff still put both staffs under unusual strains to maintain this new atmosphere of cooperation.

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3. Administrative Issues:

The above description of the situation that has prevailed in Geneva emphasizes the point that support for arms negotiations in the field without risking mismanagement and waste of resources demands that someone be in charge. Control of delegations must include specific administrative guidelines that are consistent with U.S. Government regulations, and which all delegation members are required to follow. Reacting to the demands and personal whims of the numerous heads of delegation leads to ever greater demands and efforts by representatives of each agency to ensure they are getting at least equal treatment. Failure to establish ground rules, particularly in the 1985 period when arms control activities moved into an almost frenzied pace of meetings, led to the management problems encountered by the OIG auditors in the survey conducted in the first half of 1988 and during this inspection. Drawing some lessons from the Geneva experience is all the more important as the negotiations in Geneva enter a new phase, and as the CFE and CSBM talks begin in Vienna, where similar problems are already being encountered.

To illustrate these points, the inspectors note the following:

Representation expenses: In the past year, only one official occupying a government-leased representation apartment used it extensively for official representation purposes. All other representation functions were held at local restaurants. The typical function involves two senior U.S. officials accompanied by an interpreter having lunch with their three Soviet counterparts. The average cost of these functions varies from \$40 to \$70 per person, with no evidence that the more expensive functions in any way better serve U.S. interests. The average cost is often driven up by the consumption of very expensive wines. (In one case, the U.S. host selected a \$90 bottle of vintage wine). Several vouchers reflect costs of food provided during briefings of congressional delegations, with the briefing accomplished at a reasonable cost; several other vouchers reflect briefings conducted at the most expensive establishments in Geneva at very high cost. Failure to set ceilings for representation functions results in abuse and less than optimal use of limited funds. The ACDA/Geneva administrative officer is unable to speak with any authority in rejecting expenditures considered inappropriate.

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Use of official vehicles: Because delegation members are often in Geneva on temporary duty status for extended periods and thus have no access to private vehicles, they turn to the large ACDA motorpool as a possible source for their transportation. Vehicles are being used for residence-to-office transportation as well as for private recreational and other purposes, without adherence to guidelines such as those set forth in 6 FAM 228. One agency authorized use of government-leased vehicles after determining that public transportation is inadequate and unsafe, despite the universal opinion that Switzerland has one of the best bus and rail transportation systems in the world. Vehicles used for residence-to-office transportation are often left parked in unsecured areas at night. Maintenance, mileage, and gasoline consumption records are woefully inadequate.

Leased apartments: The apartments leased by the various agencies for temporary duty personnel are not utilized to their full potential. While some effort is made to assign senior personnel to an apartment, these apartments remain vacant for extended periods of time whenever arms negotiations delegations are not in Geneva. Inventories of government-owned furnishings in these apartments are not up to date, nor is there any systematic procedure for having temporary occupants sign in and out for the inventory. Four of the apartments were provided with silverware and crested china, even though only one apartment has been used for representation purposes over the past year and a half.

Without clear authority from headquarters, the ACDA administrative staff does not feel it can insist on greater use for representation purposes, assign individuals to these quarters in lieu of the lodging portion of per diem, or arrange with other delegations visiting Geneva under the auspices of the U.S. Mission to make use of these facilities.

PCS status for delegation members: As noted above, DOE recently decided to assign its member of the NTT delegation permanently to Geneva. The first indication of this decision was a notification from DOE to the U.S. Mission announcing the assignment. No effort was made by DOE to determine in advance whether the U.S. Mission could provide the necessary administrative support, nor was there any effort to work out an arrangement to cover support costs. No approval was sought

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from ACDA, as DOE operated on the assumption that because the head of the NTT delegation was "aware" of DOE's intentions, this constituted approval. At present, there are no procedures in place to prevent any other U.S. Government agency involved in arms negotiations from following the DOE example.

Contracting: Even though no one on the ACDA administrative staff in Geneva has contracting authority, three personal computers and three photocopying machines were purchased by that staff in FY 1988 without involving the U.S. Mission's contracting officer.

Security: Intelligence operations by Soviet and other elements in Geneva are a continuing concern. The huge Soviet and East European presence, coupled with the opportunities for frequent social contacts, require vigilant attention by those responsible for security as well as cooperation from the delegation members. Unfortunately, delegation members, especially those who have served for several years with the delegation, tend to adopt a rather blase attitude, and are lax in reporting these contacts to the U.S. Mission's RSO. Furthermore, even with serious concerns about the vulnerabilities of staff who stay in certain places, the RSO has had no authority to rule such places "off limits" to delegation members.

Some of these examples are admittedly historical and, as indicated, some remedial steps have been taken already to bring about greater uniformity in practices, more efficient use of resources, and greater adherence to government regulations. These steps require reinforcement along the lines suggested in the recommendations in Section VI, as well as a clear understanding by every member and other staff associated with the delegations that the ACDA Director has the authority to establish and enforce appropriate standards and guidelines.

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B. Vienna

ACDA's representation in Vienna is limited to one senior officer assigned responsibility for both CFE and CSBM, supported by others assigned, as warranted, to each delegation. (ACDA contemplates that initially there will be less senior officers assigned on a rotating basis to CSBM, with the senior officer concentrating on CFE.) ACDA also provides technical support to the U.S. Mission to the United Nations System Organizations in Vienna (UNVIE) in its interaction with IAEA. The inspectors found that the ACDA input into IAEA deliberations and technical work is highly valued and almost irreplaceable. No particular problems were encountered regarding ACDA's own presence in Vienna or with its backstopping of delegations.

Based on the problems arising in the management of the arms control delegations in Geneva related above, both ACDA and the Department of State should ensure that procedures paralleling those recommended for Geneva are implemented immediately in Vienna in order to avoid any repetition of similar administrative deficiencies.

C. Geneva and Vienna

One issue relevant to both Geneva and Vienna, which receives more detailed discussion in the findings related to Recommendation 50 (Section VI) is the question of the status of the heads of arms control delegations while they are present at the negotiation sites. The chiefs of mission who are permanently resident in Geneva and Vienna, namely, the chief of U.S. Mission Geneva and the U.S. Ambassador to Austria, over the years, have expressed concern regarding their seeming inability to exercise their authority as chiefs of mission over arms control delegations. They have not been consulted regarding the permanent stationing of delegation members in Geneva and Vienna, despite their mandate to review the American presence from the standpoint of security, and have little advance warning regarding the administrative support their respective missions are expected to provide both PCS and temporary members of delegations. Heads of delegation, on the other hand, having been accorded the rank of ambassador, want as little interference as possible with the functioning of

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their delegations with a particular concern that any subordination to the permanent chiefs of mission might lead to interference with the performance of their duties. Lack of a clear delineation of lines of authority in these circumstances has contributed to confusion in the area of administration and has resulted in the assignment of personnel on PCS without the concurrence of the resident ambassadors. The Director of ACDA and the Secretary of State need to resolve this issue as soon as possible, inasmuch as new delegations are now forming for the continuing negotiations in both Geneva and Vienna.

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V. INTERNAL CONTROLS

A series of selective checks and reviews of internal management controls within ACDA was conducted within the constraints of time and personnel available for the inspection. The inspectors found that, in general, internal controls can be strengthened in both Washington and Geneva.

Internal controls issues at ACDA/Washington primarily involve administrative practices and procedures. Additionally, potential fraud and abuse issues may exist in one of the ACDA offices. These issues have been referred to OIG's Assistant Inspector General for Investigations.

The inspectors noted that internal controls should be improved, and a system developed, to ensure that employee position descriptions and work requirements statements are maintained on a current basis, and that performance evaluations are completed in a timely manner.

Internal controls over the travel function could be enhanced by providing for a separation of duties. Currently, one employee processes travel advances, GTRs, travel vouchers and, in the absence of the primary cashier, pays travel advances from the imprest fund. Also, controls and accountability over the imprest fund should be improved.

ACDA has taken aggressive actions to correct security problems found during recent GAO and ACDA/OIG security reviews, and to improve the overall security program of the Agency. ACDA has formally upgraded its Office of Security under a recent reorganization, placing it under the direct control of the ACDA Deputy Director, and hiring a permanent security officer. Both the Director and the Deputy Director have given the highest priority to improving policies, procedures and practices relating to: (a) physical and communications security; (b) controls over classified documents (especially Top Secret and sensitive compartmented information); (c) personnel security; and (d) computer security.

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The following internal control issues were apparent during the inspection of ACDA/Geneva:

In the financial area, accountability and control over the petty cash fund should be established. Examples of questionable year-end expenditures and procurement practices still exist. No system is in place to control the large numbers and varieties of periodicals provided by ACDA to the various delegations.

Controls over property should also be improved. The inventory of government-owned household property is outdated and accountability for this type of property is lax. In addition, motor vehicle maintenance and usage records for the ACDA fleet are inadequate.

ACDA Geneva requires a system to ensure that work requirements statements and performance evaluations are prepared in a timely manner.

There is a need for tightened procedures governing counterintelligence and controls over the distribution of classified documents. ACDA officials in Washington advised the inspectors that actions to correct problems identified during the inspection are already underway.

While the inspectors commend ACDA/Geneva for recent internal controls improvements in areas such as year-end spending and procurement practices, more needs to be done. Increased managerial emphasis on the importance of developing and adhering to a solid system of internal controls should further improve administrative operations both in Washington and Geneva.

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OFFICE OF INSPECTOR GENERAL

INSPECTION OF THE
U.S. ARMS CONTROL AND DISARMAMENT AGENCYVI. FINDINGS AND RECOMMENDATIONS

ACDA's internal research and analysis program is weak and decentralized. ACDA is consistently behind, and starts most of its research on verification measures after arms control negotiations are well underway; verification thus becomes an afterthought to be considered during the completion phase of negotiations. Such tardiness risks having to accept less than optimum verification measures as political impulses build to reach a final agreement. Moreover, there is too little comparative analysis of the different negotiations in which the United States is engaged, especially comparison of possible verification problems. ACDA should have verification analysts to follow the various arms control talks on a continuing basis, enabling them to develop "a feel" for the nuances of the negotiations. These assigned verification analysts should be, in effect, the "verification advisers" to the various delegations. ACDA needs to reorganize and strengthen the VI Bureau which now conducts most of ACDA's in-house research and analysis. It should move the Defense Program and Analysis Division (DPA), which handles the routine but heavy workload of congressionally mandated Arms Control Impact Statements, from the NWC Bureau to VI. At the same time, the Agency should seek some relief from the Congress on the routine reports, so as to free the division to do more analyses on broader arms control issues. The inspectors assume that, as at present, about 80 percent of the research will be on verification measures.

Recommendation 1. ACDA should emphasize the importance of verification measures as integral elements of the negotiation process by assigning verification analysts to track each negotiation in which the United States is engaged, on a continuing basis, from the beginning of each set of talks. (Action: ACDA/D and ACDA/VI)

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Recommendation 2. ACDA should move the DPA Division from the NWC Bureau to the current ACDA/VI. (Action: ACDA/D)

Recommendation 3. ACDA should consult with the appropriate congressional committees to seek some relief from the more routine reports to enable the DPA division to engage in more meaningful analyses of arms control issues. (Action: ACDA/D and ACDA/OCA)

Recommendation 4. ACDA should transfer responsibility for its annual report to the Congress from the DPA Division to the OCA office. (Action: ACDA/D and ACDA/OCA)

Recommendation 5. ACDA needs to recruit additional personnel for the Operations Analysis Division (VI/OA), in order to enhance its research and analysis capacity, especially in the area of computer modeling. (Action: ACDA/D and ACDA/VI)

Each year, ACDA management tasks its bureaus to provide proposals with detailed justifications for external research that each bureau would like during the upcoming fiscal year. The ACDA Research Review Board (RRB), chaired by the Deputy Director and supported by its Policy Program Group (PPG), reviews the proposals and recommends approval or disapproval of the requests to the Director. The RRB is guided by a five-year plan for external research; however, the Board does not provide explicit guidance based on the five-year plan to the bureaus preparing research requests. Nor does RRB explain possible fiscal restraints. The result is a significant waste of effort, as the bureaus prepare elaborate justifications for requests that have no chance, either due to shortage of funds or to nonconformance to the five-year plan. The Agency needs to improve its procedures in tasking the bureaus to prepare research requests to avoid wasting staff time.

Recommendation 6. ACDA should shift responsibility for supporting RRB from PPG to the VI Bureau, which will be more familiar with the range of research and analysis needed. (Action: ACDA/D)

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Recommendation 7. ACDA should revise the policies and procedures for tasking its bureaus to provide research proposals to ensure that those bureaus are fully aware of: (a) the funding limits for the next fiscal year; and (b) those specific arms control objectives that each bureau should address in the next year. (Action: ACDA/D and ACDA/RRB)

The VI Bureau contains the office that manages liaison with the intelligence community. ACDA should create a separate "Office of Intelligence" and move it directly under the Deputy Director, who also has the Office of Security (see Recommendation 38). This will permit more attention to counterintelligence. Moreover, it will also allow the VI Bureau, which should be renamed the "Verification and Research" Bureau, to focus on its core mission of research and analysis.

Recommendation 8. ACDA should move DI from the current VI Bureau to the Office of the Deputy Director. (Action: ACDA/D)

The MA Bureau, charged with managing multilateral negotiations, has ended up with one major bilateral negotiation, i.e., NTT. While there is multilateral interest in these talks, the most important elements are bilateral and nuclear. It also seems likely that there is less opportunity to share views on the important U.S.-Soviet connection with other personnel in the SP Bureau backstopping bilateral talks. Therefore, responsibility for NTT should be moved to SP. After making this shift, the chemical weapons ban responsibilities and resources of MA/STP can then be shifted to the International Security Affairs Division (ISA) of the current MA Bureau, which manages the CD talks in which the chemical weapons ban is being discussed. The inspectors also recommend that other technical personnel from the STP Division should be transferred to another bureau (see Recommendation 15). The STP Division has managed these functions well, even though in a bureau not logically responsible for them; however, after the STP staff is shifted to other bureaus, that division will essentially be abolished, leaving MA with just two divisions. The MA Bureau manages some very intense negotiations, and there is merit in reducing management's span of control over these important functions.

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Recommendation 9. ACDA should shift the responsibility and staff for supporting the NTT from MA/STP to the SP Bureau.
(Action: ACDA/D)

Recommendation 10. ACDA should shift the staff following chemical weapons ban talks from the STP Division to the ISA Division of the MA Bureau. (Action: ACDA/D)

Recommendation 11. ACDA should abolish the STP Division, leaving the MA Bureau with just two operating divisions.
(Action: ACDA/D)

Under the Arms Export Control Act (AECA), decisions to transfer arms or provide military assistance are coordinated with ACDA. ACDA's input is taken into account to the extent to which proposed transfers or military assistance might undermine U.S. nonproliferation efforts, increase the possibility of regional conflict, or prejudice the development of bilateral or multilateral arms control arrangements. Decisions to transfer arms or provide military assistance are actually managed by the Department of State, with significant inputs by DOD and other U.S. Government agencies. ACDA's input to this process is at best marginal. ACDA's reviews tend to be pro forma in nature, and they rarely influence decisions to sell or transfer arms. During 1988, ACDA reviewed approximately 1,500 foreign military sales cases and commercial requests for licenses to export military equipment. None of these proposals was adversely affected by input provided solely by ACDA. ACDA should redirect its limited resources to areas where its expertise can be applied more effectively, e.g., providing additional coverage to the growing problem of proliferation of advanced weapon systems technology.

Recommendation 12. ACDA should revise its policies and procedures for the receipt and review of arms transfer cases referred to ACDA by the Department of State, in order to reduce the amount of time and effort expended on this process.
(Action: ACDA/NWC Assistant Director)

Recommendation 13. ACDA should consult with PM/OMC in the Department of State in order to develop criteria to reduce the number of arms transfer case referrals to only those that legitimately require ACDA's assessment and input. (Action: ACDA/NWC Assistant Director)

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The NWC Bureau should be strengthened to deal with the problems involving the proliferation of new technology and exotic weapons, e.g., biological and chemical weapons and advanced missile technology. Although the NWC Bureau does not follow any ongoing negotiations (except for the periodic reviews of the Nuclear Nonproliferation Treaty), there is a fairly steady load of bilateral and multilateral discussions and consultations which take the Bureau's Assistant Director away from management duties. ACDA could use one of the two Special Representatives for Arms Control and Disarmament Negotiations provided in ACDA legislation as a "trouble shooter" to deal with international consultations on proliferation issues, some of which should be handled at a higher level.

Recommendation 14. ACDA should restructure the Arms Transfer Division (ATD) into a division to follow issues regarding the proliferation of advanced weapons technologies of all kinds. (Action: ACDA/NWC Assistant Director)

Recommendation 15. ACDA should transfer additional technical staff from MA/STP to NWC/ATD (see findings for Recommendations 9, 10, and 11), to enable the office to perform meaningful analyses of proliferation problems involving advanced weapons technology. (Action: ACDA/D)

Recommendation 16. ACDA should consult with the White House and the Congress about using one of two positions provided in ACDA legislation for "Special Representatives for Arms Control and Disarmament Negotiations" as a "trouble shooter" to support nonproliferation consultations. (Action: ACDA/D)

The mailing lists used by ACDA's Office of Public Affairs (PA) are outdated, and PA is uncertain whether appropriate recipients are getting ACDA materials, or even whether appropriate materials are being provided. A survey of readers and their needs is necessary. A publication such as the Arms Control Update could be used to solicit information from readers on ways in which ACDA can be helpful to them.

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In a period of limited resources, every effort should be made to have publications pay for themselves, e.g., through sales. Arrangements should be made, whenever possible, for the GPO to take over the publication and sale of information prepared by ACDA/PA. An alternative might be to look into publications production available in the private sector.

Recommendation 17. ACDA should initiate a complete review of the publications it manages, eliminating those found not to be needed by current users. At the same time, the mailing lists (PAIDS, etc.) should be culled by direct, written communication with everyone now on the list. This same communication should be used to solicit ideas about other information which those listed might find useful. (Action: ACDA/PA Director and staff)

Recommendation 18. ACDA should contact GPO, or private publishers, to have major publications printed by them, and sold to the interested public for a price to cover the cost of publication. (Action: ACDA/PA Director)

The Historical Unit of PA is not able to keep up with the tasks set forth for it in the ACDA Manual, Volume 1 (Section 242): "...research and prepare historical analyses on arms control topics and previous negotiations." Because of the lack of up-to-date equipment and the necessary human resources, the Unit is now seriously behind in the publication of Documents on Disarmament. It has had other assignments taken from it and transferred elsewhere in PA. If the Agency cannot afford the necessary human and other resources, including supervision, it should begin discussing with another larger and more up-to-date office, such as the State Department's Office of the Historian, to assume the functions that are now carried out by the ACDA Unit.

Recommendation 19. ACDA should assess the continuing need for the Historical Unit. If it is found to be necessary, ACDA must provide the staff and modern equipment needed by the Unit to carry out its functions. If the Agency lacks the funds to do this, it should consult with the Department of State Office of the Historian regarding State's PA/HO taking over the Unit's functions on behalf of ACDA. (Action: ACDA/D and ACDA/PA Director)

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Over the years, the ACDA library has been allowed to diminish to a point where it can be only minimally useful. The Agency should assess continuing need for its library. ACDA should ascertain whether it has the funds to maintain the library properly, or whether it should be shifted to another agency, such as the State Department. Alternatively, the Agency could simply move the subscription functions elsewhere within ACDA, and dispose of the books in accordance with general library practices.

Recommendation 20. ACDA should assess the continuing need for its library, and decide whether it can provide adequate space and resources for the unit, whether to move it elsewhere, or whether to close it. (Action: ACDA/D and ACDA/PA Director)

With the growth of treaty implementation responsibilities, the Director of ACDA needs to play a larger role in guiding the monitoring and compliance functions of arms control. The ACDA Director needs to upgrade the latter function within ACDA. This operational aspect differs from the research requirement, and, while there must be close and continuing consultation between the two, a small, separate office, reporting directly to the ACDA Director, is needed to develop, coordinate, and integrate operational policy. The Director should have an "Arms Control Operations Office (ACO)" directly attached to ACDA/D to:

- (a) Manage reporting on Soviet compliance with existing arms control agreements;
- (b) Integrate advisory opinions from the bureaus and offices regarding treaty implementation;
- (c) Coordinate negotiations with the Soviet Union (SCC and SVC) and other countries concerning treaty implementation;
- (d) Coordinate legal guidance on treaty implementation to the OSIA, and/or other bodies that may be established; and
- (e) Manage other implementation of existing treaties.

The staff for the "ACO" could be drawn in part from the current SP/TA (Theatre Affairs Division), which managed the now-concluded INF talks. It appears likely that discussions on possible Short-Range Nuclear Force (SRNF) reductions will

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remain in the NATO context for the foreseeable future. Therefore, responsibility for these could be shifted to the European Security Negotiations Division (MA/ESN). Inasmuch as oversight of INF implementation issues would pass to the new "ACO" office, SP/TA could be abolished, reducing the SP Bureau to two divisions. As in the case of the MA Bureau, there is merit to reducing the management span for the control of such vital negotiations.

Recommendation 21. ACDA should abolish SP/TA, shifting responsibility for the SRNF discussions to MA/ESN. (Action: ACDA/D)

Recommendation 22. ACDA should use the freed SP/TA positions to create a small office of "Arms Control Operations," attached directly to ACDA/D. (Action: ACDA/D)

The mechanism to provide policy guidance to OSIA is currently unclear. Consequently, such guidance is, at least temporarily, somewhat confused. ACDA should chair an interagency group to provide guidance to OSIA, but this will have to await decisions at the NSC level. ACDA obviously cannot solve this situation alone, but stronger, clearer expression of ACDA interest in OSIA operational matters would be helpful.

Recommendation 23. ACDA should establish a working group, chaired by the Assistant Director of the SP Bureau, and including the Assistant Director of the current VI Bureau and the General Counsel, to develop ACDA views on OSIA operations to present for interagency consideration. These views should also be provided to OSIA through the ACDA Deputy Director of OSIA. (Action: ACDA/D)

The personnel structure of ACDA is skewed and lacks organization. The grade levels of many positions do not appear to match duties and responsibilities of the incumbents. The Agency needs a complete survey of staffing. ACDA has had many positions unfilled for the past five years. These should be reprogrammed for any additional staff needs, and ACDA should not request any new positions until it has studied and improved its personnel structure.

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Recommendation 24. ACDA should seek the assistance of OPM, or another agency with professional personnel management capabilities (e.g., the Department of the Air Force), to conduct a comprehensive review of positions, structure, and staffing of the Agency. (Action: ACDA/D and ACDA/A)

ACDA is small and highly political in nature, and has a requirement for a large number of high-graded personnel with expertise in technical or foreign affairs subjects. The development of a meaningful career ladder is inherently difficult. Nonetheless, ACDA management could do much to correct current anomalies that have a deleterious effect on morale. For example, the Agency needs to address:

(a) How and where new personnel are recruited and how incoming grades are established;

(b) How to reserve for career ACDA employees first- and second-level supervisory positions (some of which are now filled by detailees from other agencies or retired U.S. Government employees);

(c) How to limit the appointment time of SES incumbents (such an "up or out" system may require legislation), in order to ensure upward mobility;

(d) How ACDA might make use of the PMI (Presidential Management Intern) program; and

(e) How to limit detailees and long-term consultants to those positions where special expertise is in current demand, and recruit accordingly.

Recommendation 25. ACDA should review the current career patterns of ACDA career employees to develop possible ladders for progression through the ranks, addressing the types of issues noted above. (Action: ACDA/A and Personnel Office)

ACDA lacks an agencywide program for training and career development. Training is largely ad hoc. Because training notices are not circulated widely, some bureaus are omitted almost entirely. This is seen by excluded employees as management indifference toward their needs, with a corresponding damage to morale. Junior level supervision in

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ACDA is weak, a reflection of lack of experience and training. There is very little professional training, e.g., on negotiations, despite the fact that ACDA has unparalleled resources available to conduct such training. Specific required actions include:

(a) Wider circulation of notices of training opportunities and encouragement of supervisors to send more individuals to training;

(b) Management and supervisory training for personnel with the promotion potential, prior to being moved into supervisory positions;

(c) Periodic in-house training seminars, e.g., gathering a small group of experienced, senior arms control negotiators to lead discussions on techniques for the benefit of more junior personnel, or exploring the possibility for more intensive training in negotiation scenarios, along the lines of the USAF's "Red Flag" training for fighter pilots;

(d) Seeking more training slots at U.S. Government schools for ACDA employees, such as the Foreign Service Senior Seminar, the Armed Services Staff College, or other senior military schools;

(e) Developing a program of outside university training;

(f) Developing a program of planned rotation between divisions and bureaus within ACDA, on a reasonable schedule; and

(g) Developing exchange programs with other agencies which share an interest in arms control, giving career ACDA employees and employees of the other agencies the opportunity to exchange positions for mutually beneficial one- or two-year assignments.

Recommendation 26. ACDA should develop an active, ongoing program to promote training and employee development.

(Action: Personnel Office, with supervision by ACDA/A and the ACDA Deputy Director)

ACDA should review the way it recruits and uses the engineers and scientists it needs, especially as it increases its research and analysis effort and assumes a greater role in operations. The ACDA Director could also use personal technical and scientific advice, with a special adviser to maintain contacts between the Agency and a broad section of the scientific community and to provide general advice on proper use of other technical skills within ACDA.

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Recommendation 27. ACDA should consult with bureau and office heads to develop a requirements list for technical expertise needed over the next three years. (Action: ACDA/A and Personnel Office)

Recommendation 28. ACDA should develop a systematic plan for bringing the necessary technical experts into ACDA on a short-term basis, as detailees from other U.S. Government agencies, or as technical consultants under the Foster Fellow Program. (Action: ACDA/A and Personnel Office)

Recommendation 29. ACDA should consult with the White House and the Congress about converting one of the Special Arms Control Representative positions to become the Chief Science Adviser to the Director. (Action: ACDA/D)

Secretarial morale is very poor. Secretaries feel their professional skills are not utilized properly, that they are left out of interoffice communication, and that there are few training opportunities for them. Although the inspectors noted an encouraging recent trend within the Agency to give awards to lower-graded employees (past awards tended to be monopolized by the higher-graded employees), secretaries still feel that they are being slighted. Nonsecretarial personnel complain that secretaries are not responsive to requirements and do not provide sufficient support. The communication gap is corrosive to teamwork. ACDA could use a task force of representatives of both secretarial and nonmanagerial, nonsecretarial personnel to review the treatment and use of secretaries in the Agency.

On January 10, 1984, the Director of ACDA committed the Agency to identify paraprofessional positions that could be filled by qualified support staff personnel, to designate these as "upward mobility positions," and to advertise them as such. To date these positions have not been identified or notified to personnel. Given the size of the Agency, opportunities are limited, but even a limited upward mobility program could be a valuable tool to help meet the goals of an active affirmative action program.

Recommendation 30. ACDA should convene a task force to develop recommendations to the Director on how to improve the treatment, morale, and utilization of secretaries. (Action: ACDA/D and ACDA/A)

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Recommendation 31. The Secretarial Task Force should also advise the Director on how to implement an upward mobility program to meet the ACDA Director's 1984 plan. (Action: ACDA/A)

Minorities and women are underrepresented in ACDA. In the nonadministrative professional work force, minorities encumber only two positions and women occupy 13 percent of the total of 69 positions.

ACDA has hired on contract an EEO specialist who has drawn up an Equal Opportunity Recruitment Program and Equal Opportunity Program Handbook, and put in place an EEO program. An EEO counseling program has been established. Five collateral duty EEO counselors have been designated. This contract will be terminated, and EEO responsibilities will be assumed by an employee as a part-time duty. An upward mobility handbook has been developed, but the Agency has not put into place a formal upward mobility program and should do so as soon as possible (see Recommendation 31).

Recommendation 32: ACDA should reemphasize and make clear its definite commitment to affirmative action and transmit this commitment to those officers who interview applicants. (Action: ACDA/D)

ACDA lacks overall goals and objectives established and disseminated by Agency management. The bureaus and other units of ACDA have been hampered, therefore, in establishing longer-range workplans to encourage more analysis and planning of negotiations on various arms control subjects. Without such direction, ACDA personnel tend to devote all their time to the day-to-day backstopping of negotiations on an ad hoc basis, and the Agency is increasingly viewed as an administrative unit for arms control negotiations, not as a serious participant in the interagency process.

Recommendation 33. ACDA should formulate broad goals and objectives to guide the work of the Agency for the next year. (Action: ACDA/D and top management staff)

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Recommendation 34. ACDA bureau and office Directors should use the goals and objectives defined by management to develop workplans for their respective units. Division chiefs should discuss these bureau and office plans with their staffs to develop individual work programs. (Action: ACDA bureau, office, and division chiefs)

The Executive Secretary of ACDA, a competent but relatively low-graded career employee, efficiently meets the needs of the Director and Deputy Director, but plays only a minor role in regulating the flow of decisions and other communication within the Agency. The coordination responsibility is split between the Executive Secretary and PPG. This division of responsibility hampers Agency communication; centralizing responsibility would be better. Responsibility for official records has been decentralized to the bureaus and offices; however, in the absence of standardized requirements, the quality of these decentralized files and records varies greatly. In any event, they are for the most part insufficient. Moreover, there is no computer index to the records. The Executive Secretary should be an operating arm of the Director, charged with overseeing the completion of assigned taskings, managing high-level coordination with other agencies, organizing special studies or projects for the Director, and keeping the Director informed of emerging policy issues.

Recommendation 35. ACDA should merge PPG with the Executive Secretary to create an Executive Secretariat. The grade of the Executive Secretary position should be increased, and the position should be filled with an officer of sufficient stature to be able to participate effectively in forums with Executive Secretaries of other agencies. (Action: ACDA/D)

Recommendation 36. ACDA (Executive Secretary) should formulate standard requirements for maintaining more complete official records, with a computerized index, for the Agency. (Action: ACDA Executive Secretary and Management Information Section)

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There is inadequate transmission of information from the top management of ACDA to working levels. There is little conscious effort to disseminate such information, and personnel are not briefed in routine staff meetings by first-line supervisors. In addition there has been little effort to ensure lateral dissemination of information concerning developments in all elements of the Agency.

Recommendation 37. ACDA should emphasize to all levels of supervision the need to ensure that all employees are routinely and regularly informed of management decisions taken at higher levels of the Agency. (Action: ACDA/D)

The span of control of the Director of ACDA is too widespread, including supervision of four bureaus, four major separate offices, two special commissions, one arms control negotiating delegation, and other special personnel. Given the heavy policy involvement of the ACDA Director, the large span of other duties comprises too heavy a workload. The Deputy Director should be given more authority over the day-to-day administrative management of the Agency, subject, of course, to final approval by the Director.

Recommendation 38. ACDA should assign to the Deputy Director direct responsibility for the day-to-day management of ACDA/A and the new Office of Intelligence (see Recommendation 8), as well as continuing the Deputy's direct responsibility for managing the Office of Security and the Special Compartmented Intelligence Facility (SCIF). (Action: ACDA/D)

ACDA's Office of General Counsel provides lawyers to support the delegations engaged in negotiations on START and Defense and Space. Lawyers also support the SCC and continue to follow the implementation phase of the INF Agreement, while the Deputy General Counsel has supported the NTT. One lawyer is assigned to assist the MA Bureau in the various talks engaging that office, while another provides general administrative counsel for the Agency. By all accounts, the

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lawyers have done well in supporting the delegations to which they are assigned, but at great personal cost. Relief from their heavy schedules is nearly impossible, and support to delegations is not comprehensive. Moreover, as new negotiations increase in importance, OGC will be hard pressed to support them. In addition, OGC should assist the Director and the new office of "Arms Control Operations" in monitoring the implementation of arms control treaties. The OGC needs additional attorneys, and secretaries and paralegal assistants to perform research and archiving duties. OGC also should have a better legal library and access to a computerized legal data base, such as Lexis.

Recommendation 39. ACDA should develop a zero-based justification for adequate staff (including attorneys, paralegal assistants, and secretaries) and facilities to provide meaningful support for the full range of negotiations and agreement implementations. (Action: ACDA/OGC)

Recommendation 40. ACDA should support OGC's requirements for the legal support necessary for existing and future arms control negotiations. (Action: ACDA/D)

ACDA is the natural agency of the U.S. Government to be charged with compiling official versions of the negotiating history of arms control negotiations that result in international agreements. However, the Agency has not developed the criteria for performing this important function, nor has it devoted the necessary resources to the task. As a result, the Department of State compiled the official negotiating history to be presented to the Congress during its consideration of the INF Agreement. ACDA/OGC should prepare guidelines for the negotiating histories for arms control talks which can be agreed to by other participating agencies. Additional resources will be required to support this important function.

Recommendation 41: ACDA should develop criteria for compiling official U.S. Government negotiating histories for major arms control negotiations that can be agreed to by participating agencies. These criteria should be applied to the acquisition, analysis and archiving of the necessary documents as the negotiations proceed. (Action: ACDA/OGC)

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The coordination of the government's relations with the Congress on arms control and disarmament issues is of concern to ACDA's Office of Congressional Affairs. OCA would be prepared to assume the coordinating responsibility, within parameters established by NSC and OMB. It argues that a much more forward-looking stance would be possible vis-a-vis the Congress. Serious consideration should be given to naming ACDA the coordinator of congressional relations dealing with arms control and disarmament issues.

Recommendation 42. ACDA should prepare a paper fully documenting OCA's capacity to manage overall coordination of the Administration's relations with the Congress on arms control issues to be presented to an interagency forum for consideration. (Action: ACDA/OCA Director)

Three of ACDA's key offices are separated from the rest of the Agency -- OCA and PA are located in a building 12 blocks away from the main State building, and the contract section is located in Clarendon (along with part of PA). This arrangement creates a serious operating handicap for ACDA (especially with regard to the essential function of managing relations with the Congress). If ACDA grows, this problem will become more severe. In order to increase the Agency's effectiveness, these outlying operations of ACDA should be collocated with the rest of the Agency, either in the main State building, or in a separate facility easily accessible to the main State building.

Recommendation 43. ACDA should consult with the Department of State about the possibility of securing additional space in the main State building, or develop plans to seek space in a separate facility, in an effort to consolidate its operations in one location. (Action: ACDA/D and ACDA/A)

The chief negotiators of the various arms control talks report through a variety of channels, mostly to the Secretary of State. Under a March 8, 1985 agreement between State and

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ACDA, ACDA undertook to reimburse State for expenses of the delegations, but had no say in their management. This has resulted in a number of problems involving administrative support for delegations in Geneva. The Director of ACDA has had difficulty in developing and imposing standards to regulate costs for the delegations. ACDA and the Department of State need to review the 1985 agreement to ensure that the Director of ACDA has unambiguous authority to develop guidelines and standards for support of delegations in Geneva and Vienna.

Recommendation 44. ACDA should review the 1985 agreement with the Under Secretary of State for Management, in order to ensure that it establishes unambiguous authority for the Director of ACDA to establish and enforce appropriate standards and guidelines for the administrative support of delegations in Geneva, and, as necessary, in Vienna (see Recommendation 45). (Action: ACDA/D and ACDA/A)

Effective administrative control over the delegations which meet in Geneva is lacking; individuals representing various agencies feel no obligation to follow common guidelines. Control cannot be exercised unless the delegations clearly understand that they are to take guidance from the Director of ACDA.

Recommendation 45. ACDA should ensure that any agreement worked out with the Under Secretary of State for Management is also concurred in by all agencies participating on arms control delegations, in order that all U.S. Government personnel assigned to arms control delegations meeting in Geneva and Vienna understand they are under the administrative control of ACDA, and will be required to adhere to any administrative rules and procedures established by ACDA. (Action: ACDA/D and ACDA/A)

Representation purposes was one of the justifications given for the rental of apartments in Geneva for temporary duty personnel. Silverware and crested china were purchased for some of these apartments for the same reason. Although these quarters were reportedly used extensively for representation

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purposes several years ago, this is not now the case. (Only one chief representative used a rental apartment for representation purposes.) The rental of such quarters is not cost effective, but other considerations may figure in providing them to the senior representatives. If a decision is taken to lease such quarters, ACDA should record the extent to which they are used for representation purposes in order to justify the cost. (Cooks and waiters can be hired on ad hoc basis, negating the argument for hiring additional residential staff, unless such entertaining is frequent and done throughout most of the year.) Leasing quarters for individuals of other than those of ambassadorial rank has resulted in uneven treatment of members of delegations.

Recommendation 46. ACDA should record and evaluate the amount of representational use being made of the medium- and long-term leased quarters assigned to personnel on temporary duty in Geneva. (Action: Administrative Office, ACDA/Geneva)

Recommendation 47. ACDA should advise the Director if it becomes clear that leased quarters are not being used for representational purposes. (Action: Administrative Office, ACDA/Geneva)

Per diem rates for personnel on temporary duty in Geneva are based on the cost of an average hotel room at a daily rate and the cost of three meals a day at a modestly priced restaurant. Arms control delegations normally stay in Geneva for periods of at least two to four months, if not longer. Most of the delegation members, therefore, arrange lodging, including access to kitchen facilities, at monthly rates. Consequently, delegation personnel are able to save significant amounts of money out of the per diem payments. A rationale for permitting such savings is that individuals on extended temporary duty outside the United States are inconvenienced by being away from home, must maintain two domiciles, are separated from families and friends, and have extra difficulty in taking care of many personal affairs. In particular, the long separation from spouses may make them vulnerable to security threats. Some find this the only way they can afford to pay for their dependents to join them for at least part of this extended period of separation. While not questioning the

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legitimacy of these arguments, it would still appear that the cost of conducting arms control negotiations could be significantly reduced by providing for per diem at a monthly lodging rate, without imposing an undue burden on delegation personnel.

Recommendation 48. ACDA should give the Administrative Officer in ACDA/Geneva written direction to assign delegation personnel to any vacant temporary duty apartment. If no volunteers can be found, the individual(s) selected by the administrative officer should be advised that the lodging portion of the per diem will not be paid. (Action: ACDA/D)

Recommendation 49. ACDA should consult with the Department of State on establishing a per diem rate based on average monthly lodging rates, or on an actual lodging cost basis, to be applicable to any personnel remaining in Geneva on temporary duty for a period of one month or longer. (Action: ACDA/D and ACDA/A)

Recommendation 50. At the same time that a monthly per diem rate is established, ACDA should authorize travel for spouses of delegation personnel who must remain in Geneva for an extended period, e.g., three months or longer at a time, or more than six months in any one year. (Action: ACDA/D)

A source of continuing tension between the arms control delegations and the resident permanent U.S. Mission in Geneva and Embassy Vienna is the issue of the status and prerogatives of the chiefs of mission versus the heads of the arms control delegations. Views on this subject are obviously mixed. Heads of delegation fear that their ability to make decisions regarding their delegations will be circumscribed and that subservience to the permanent chief of mission could also lead to interference with the performance of their duties. They have, therefore, insisted on complete control over the functioning of their delegations, with respect to both policy and administration. These delegation heads are also very sensitive to the perquisites associated with their personal status. Chiefs of mission, on the other hand, believe their authority is undermined if others in the same city have chief of mission status. Consistent with the directive given to them

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by the President to weigh carefully every request for an increase in staff in the light of security concerns, the chiefs of mission naturally believe they have some say over the stationing of U.S. Government personnel in the host cities. Difficulties, therefore, arise when agencies represented on arms control delegations decide they wish to station personnel permanently at the site. (The unilateral decision by DOE to assign an officer to Geneva without consulting with the U.S. Mission there, and a notification to Embassy Vienna that six officials -- agencies not identified -- were about to arrive on PCS status without any prior consultation with the Embassy are recent examples.) In addition, because the permanent missions also provide significant administrative support to delegations, the chiefs of mission would like to evaluate the impact that additional staffing will have on their missions' ability to provide such support.

Precedent does not seem to provide an answer. Heads of temporary delegations do not normally have chief of mission status. Certain permanent delegations to U.N. organizations do have such status (U.S. Mission Geneva) even though several are collocated in capital cities with embassies (UNVIE in Vienna, and, previously, UNESCO in Paris). Secretary of State Shultz decided to give Ambassador Kampelman chief of mission status during his tenure, inasmuch as he was in charge of a permanent mission for arms negotiations in Geneva.

The inspectors understand that staff in the Department of State are currently preparing a decision memorandum for the Under Secretary for Management on this issue. Regardless of the Under Secretary's decision, it is imperative that the heads of delegations, working through the Director of ACDA, reach a formal Memorandum of Understanding with each chief of mission in the cities in which they operate. The MOU should spell out the procedures to be followed regarding assignment of personnel, the degree and type of administrative support the permanent missions will be expected to provide, and how delegations will reimburse the missions for such support.

Recommendation 51. ACDA should request an early decision from the Secretary of State regarding the status of the heads of arms control delegations, and work out Memorandums of Understanding with the U.S. Representative to the European

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Office of the UN and other International Organizations in Geneva and the U.S. Ambassador to Austria spelling out that status and the support to be provided by the respective missions. (Action: ACDA/D and ACDA/A)

ACDA has proposed establishing a direct, non-FAIS telecommunications link between the ACDA/Geneva CIHS and ACDA headquarters computer facilities. The proposal is considered a no-cost, interim step until an FAIS telecommunications link can be implemented. Neither DS nor A/OC in the Department of State has any serious problems with establishing this direct link. It would be necessary to disconnect the interface between ACDA's CIHS and the U.S. Mission's TERP, which would interrupt the electronic flow of telegraphic traffic between the two systems, but ACDA believes the institution of manual message handling procedures is justified. Conversely, U.S. Mission Geneva has proposed that ACDA install a protected PC link between ACDA/Geneva and ACDA/Washington, which would enable ACDA/Geneva to retain the electronic flow of traffic between the CIHS and the TERP. This proposal, however, would require the investment of \$20,000 per PC. Insofar as ACDA could have as many as six delegations in session at one time in Geneva, this could require the procurement of as many as six computers, or an investment of \$120,000. Even with six PC's, the capacity to communicate with ACDA/headquarters would not equal the capacity that would be available through CIHS. After appropriate tests have been performed over a reasonable period of time, ACDA and State jointly should assess whether a direct protected PC link would be more suitable in light of the work that would be imposed upon U.S. Mission Geneva to handle messages manually on behalf of ACDA.

Recommendation 52. ACDA should consult with the Department of State regarding a mutually agreeable test period for assessing the workability and desirability of a direct telecommunications link between Geneva's CIHS and ACDA's Washington computer facilities. (Action: ACDA/A)

As a part of its comprehensive security improvement program, ACDA officials advised that increased emphasis would be placed on the counterintelligence aspects of security. ACDA

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needs to give particular attention to the hostile intelligence environment in which delegation officials must operate, and the counterintelligence requirements in such an environment. According to the U.S. Mission's RSO, ACDA does not always take full advantage of the counterintelligence opportunities that are created by delegations in Geneva, and does not have adequate standards or procedures to minimize hostile intelligence exploitation of members of delegations. Specifically, ACDA does not have clear enforceable guidelines and procedures to ensure that delegation personnel assigned to Geneva:

- (a) Receive appropriate security briefings in Washington prior to departure for Geneva;
- (b) Report promptly all significant unofficial contacts with citizens of communist-controlled countries; and
- (c) Brief appropriate security officials in Washington or Geneva, as appropriate, immediately after returning from a visit to a communist-controlled country.

The RSO reports furthermore that, having recommended that certain facilities in Geneva be declared "off limits" to delegation personnel because of the hostile intelligence risk these places pose for Americans, the ACDA administrative office in Geneva has no mechanism to enforce these recommendations. As a result, many delegation personnel have resided in facilities that are deemed undesirable by the U.S. Mission RSO. ACDA's guidelines should also ensure that all personnel assigned in Geneva cease residing in, or frequenting, facilities identified by the U.S. Mission RSO as locations where citizens of communist-controlled countries are known to reside or frequent, or locations that are otherwise deemed undesirable or unsafe.

Recommendation 53. ACDA should coordinate with the DS Bureau of the Department of State to develop counterintelligence procedures and controls, including disciplinary actions, to ensure that all individuals assigned to arms control negotiations delegations in Geneva adhere to established guidelines. (Action: ACDA/D/S)

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The U.S. Mission Geneva RSO informed the inspectors that some arms control delegation members attempt to bring personal lap-top computers into the U.S. Mission, and may be using them to perform classified work outside the U.S. Mission. Guidelines are needed that clearly identify restrictions on the use of personal lap-top computers, and to remind personnel that these are not to be used for classified work.

Recommendation 54. ACDA, in coordination with the U.S. Mission Geneva RSO, should develop guidelines that clearly set forth restrictions on the use of lap-top computers. (Action: ACDA/Geneva Administrative Office)

Many of the heads of delegations have had cable television systems installed in their offices. These systems are linked to the satellite dish on top of the U.S. Mission Geneva building. The offices in question are located in controlled areas of the U.S. Mission in which classified topics are discussed. According to A/OC, Department of State, the installation of such equipment in areas where classified information is stored, processed, or discussed represents a technical security hazard. The cable systems must be removed from these areas. If these television sets cannot be used outside the secure areas, they should be disposed of in accordance with regulations.

Recommendation 55. ACDA, in coordination with the U.S. Mission Geneva RSO, should arrange to remove all cable TV systems located in controlled areas within the ACDA sections of the U.S. Mission building. (Action: ACDA Geneva Administrative Office, and ACDA/D/S)

The Arms Control and Disarmament Act requires the Civil Service Commission (now OPM) to conduct "full-field background security and loyalty investigations of all the Agency's officers, employees, consultants, persons detailed from other Government agencies, members of its General Advisory Committee, advisory boards, contractors and subcontractors, and their officers and employees, actual or prospective."

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At present, ACDA designates every position as "critical-sensitive," and requires the most stringent background investigation available. With the exception of political appointees (for whom the FBI performs the required background investigation), OPM performs special background investigations on all employees before they are hired by ACDA, or assigned to work in ACDA. After evaluation of the results of the OPM investigation, the ACDA Security Office grants or denies the security clearance for the prospective employee or detailee. This involves about 20 to 30 such investigations per year at a cost to ACDA of \$1,500 per investigation.

Although OPM is the agency authorized to set the standards and conduct the personnel security background investigations for most executive departments and agencies, it can delegate this authority under agreements with those departments or agencies. For example, the Department of State has such an agreement with OPM, and performs its own background investigations, which are generally equivalent to those OPM performs for ACDA.

The DS Bureau of the Department of State has an agreement to provide security support services to ACDA. As a part of this agreement, DS would be able and willing to conduct special background investigations of ACDA employees and to provide the special evaluation services, at no cost to ACDA. However, because of the legislative precision in the ACDA Act, DS is not permitted to conduct background investigations on behalf of ACDA.

Recommendation 56. ACDA should prepare a request for legislative relief from the particular part of the ACDA Act which prevents the Agency from taking advantage of the offer by the DS Bureau of the Department of State. (Action: ACDA/D/S and ACDA/OGC)

The secretary to the administrative officer in ACDA/Washington acts as the cashier and controls the imprest fund from which travel advances and petty cash type payments of up to \$6,000 per day can be made. The cashier makes an end-of-month accountability statement to GSA. The funds are kept in a safe, the combination of which is also known by the

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alternate cashier. There have been no unannounced cash counts or other verification of funds by anyone other than the cashier in at least the last four years. Internal controls procedures are needed to ensure that: (a) unannounced cash counts are made monthly; (b) the cashier is the only person who knows the combination of the safe in which the cash is kept; and (c) when it is necessary for an alternate cashier to act as the cashier, the funds, and accountability for those funds, are formally transferred to the alternate cashier, with the funds stored in a container with a combination known only by the alternate.

Recommendation 57. ACDA should institute internal controls over the imprest fund. (Action: ACDA/A)

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OFFICE OF INSPECTOR GENERAL

INSPECTION OF THE
U.S. ARMS CONTROL AND DISARMAMENT AGENCYVII. PRINCIPAL OFFICIALS

Director	William F. Burns, Major General, U.S. Army (Ret.)
Deputy Director	George F. Murphy, Jr.
Assistant Director, Bureau of Multilateral Affairs	Lynn Hansen
Assistant Director, Bureau of Nuclear and Weapons Control	Kathleen Bailey
Assistant Director, Bureau of Strategic Programs	William Fite
Assistant Director, Bureau of Verification and Intelligence	Manfred Eimer
General Counsel	Thomas Graham, Jr.
Office of Administration	William J. Montgomery
Office of Congressional Affairs	William Shephard
Office of Public Affairs	Sigmund Cohen
Senior Military Advisor	Robert Parker, Brigadier General, U.S. Air Force
Executive Secretary	Roberta Rifkin
Director, Policy Planning Group	Richard Toye

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OFFICE OF INSPECTOR GENERAL

INSPECTION OF THE
U.S. ARMS CONTROL AND DISARMAMENT AGENCYVIII. GLOSSARY OF TERMS

A/OC	Office of Communications, Bureau of Administration and Information Management
ABM	Anti-Ballistic Missile treaty
ACDA	U.S. Arms Control and Disarmament Agency
ACDA/A	Office of Administration
ACDA/D	Office of the Director
ACDA/D/S	Office of Security
ACDA/MA	Bureau of Multilateral Affairs
ACDA/MA/ESN	European Security Negotiations Division
ACDA/MA/STP	Science and Technological Policy Division
ACDA/NWC	Bureau of Nuclear and Weapons Control
ACDA/NWC/DPA	Defense Program and Analysis Division
ACDA/OCA	Office of Congressional Affairs
ACDA/OGC	Office of General Counsel
ACDA/PA	Office of Public Affairs
ACDA/PPG	Policy Program Group
ACDA/RRB	Research Review Board
ACDA/SP	Bureau of Strategic Programs
ACDA/SP/TA	Theatre Affairs Division
ACDA/VI	Bureau of Verification and Intelligence
ACDA/VI/DI	Division of Intelligence
ACDA/VI/OA	Operations Analysis Division
ACRCC	Arms Control Research Coordinating Committee
AECA	Arms Export Control Act
CD	Conference on Disarmament
CFE	Conventional Armed Forces in Europe
CIA	Central Intelligence Agency
CIHS	Classified information handling system
CSBM	Confidence and Security Building Measures

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VIII. GLOSSARY OF TERMS, CONT'D

D&S	Defense and Space Talks
DCI	Director of Central Intelligence
DOD	Department of Defense
DOE	Department of Energy
DS	Bureau of Diplomatic Security, Department of State
EEO	Equal employment opportunity
FAAS	Foreign affairs administrative system
FAIS	Foreign affairs information system
FBI	Federal Bureau of Investigation
FSO	Foreign Service officer
FY	Fiscal year
GAO	Government Accounting Office
GPO	Government Printing Office
GSA	General Services Administration
GSO	General Services office(r)
GTR	Government travel request
IAEA	International Atomic Energy Agency, Vienna
INF	Intermediate Range Nuclear Forces Treaty
JCS	Joint Chiefs of Staff
MBFR	Mutual and Balanced Force Reductions
MOU	Memorandum of Understanding
NASA	National Aeronautics and Space Administration
NATO	North Atlantic Treaty Organization
NPT	Nuclear Nonproliferation Treaty
NSA	National Security Agency
NSC	National Security Council
NTT	Nuclear Test Talks
OIG	Office of Inspector General
OMB	Office of Management and Budget
OPM	Office of Personnel Management
OSD	Office of the Secretary of Defense
OSIA	On-Site Inspection Agency
PA/HO	Office of the Historian, Bureau of Public Affairs, Department of State
PC	Personal computer
PCS	Permanent change of station
PL	Public Law

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VIII. GLOSSARY OF TERMS, CONT'D

PM	Bureau of Politico-Military Affairs, Department of State
PM/OMC	Office of Munitions Control, PM
PMI	Presidential Management Intern
RERTR	Reduced Enrichment in Research and Test Reactor
SALT	Strategic Arms Limitation Talks
SCC	Standing Consultative Commission
SES	Senior Executive Service
SRNF	Short-Range Nuclear Force
START	Strategic Arms Reduction Talks
SVC	Special Verification Commission
TERP	Terminal equipment reading program
UNVIE	U.S. Mission to the United Nations System Organizations in Vienna
USAF	U.S. Air Force
USTR	U.S. Trade Representative

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UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

Washington, D.C. 20451

OFFICE OF
THE DIRECTOR

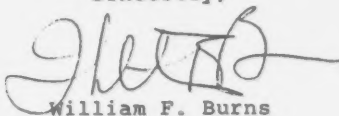
January 13, 1989

Dear Mr. Chairman:

Section 3(C) of the Arms Control and Disarmament Amendments Act of 1987, provides that: "The Director of the United States Arms Control and Disarmament Agency shall conduct a study to determine how the Standing Consultative Commission could be used more effectively to resolve arms control compliance issues. The Director shall report the results of this study to the Speaker of the House of Representatives and the Chairman of the Committee on Foreign Relations of the Senate..." The Director of ACDA was also directed to solicit the views of the former SCC Commissioners.

My report, in response to this request, is enclosed. Comments of the two former Commissioners are contained in Annexes C and D to the Report.

Sincerely,


William F. BurnsEnclosure:
As statedThe Honorable
Claiborne Pell
Chairman
Committee on Foreign Relations
United States Senate

January 13, 1989

More Effective Use of the SCC to
Resolve Arms Control Compliance Questions

I. Purpose

Section 3(C) of the Arms Control and Disarmament Amendments Act of 1987, provides that: "The Director of the United States Arms Control and Disarmament Agency shall conduct a study to determine how the Standing Consultative Commission could be used more effectively to resolve arms control compliance issues. The Director shall report the results of this study to the Speaker of the House of Representatives and the Chairman of the Committee on Foreign Relations of the Senate within six months after the date of enactment of this Act."

The President must also submit, not later than January 31 of each year, a report prepared by the US Commissioner on the activities of the Standing Consultative Commission (SCC). The first such report was submitted on February 18, 1988. This report includes detailed information on all substantive issues raised by either Party to the Treaty and will be referred to in this report as "the Commissioner's Report."

II. Background

A. Origins

Early in the SALT I negotiations, both sides recognized the need for a confidential forum to discuss implementation of the Treaty provisions being negotiated and to deal with ambiguities and compliance questions. As a result, there were few difficulties in drafting Article XIII of the ABM Treaty providing for the establishment of the SCC. The ABM Treaty and the Agreement On Measures to Reduce the Risk of Outbreak of Nuclear War are of unlimited duration; thus, the SCC is of unlimited duration. The SCC was formally brought into being by a Memorandum of Understanding (MOU) between the United States and the Soviet Union, which was negotiated during the first session of SALT II; it was signed and entered into force on December 21, 1972 (see Annex A).

The Memorandum of Understanding establishes the SCC as a joint U.S.-USSR body to promote implementation of the objectives and provisions of the ABM Treaty and the Interim Agreement Limiting Strategic Offensive Arms, both of May 26, 1972,

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as well as of the Agreement on Measures which was negotiated during SALT I and signed on September 30, 1971. The SCC's charter, as spelled out in the ABM Treaty, is quite broad (see B below).

B. Relevant ABM Treaty Provisions

Article XIII of the ABM Treaty provides for establishment of the SCC, which the Parties agreed to use to:

- (a) consider questions concerning compliance with the obligations assumed and related situations which may be considered ambiguous;
- (b) provide on a voluntary basis such information as either Party considers necessary to assure confidence in compliance with the obligations assumed;
- (c) consider questions involving unintended interference with national technical means of verification;
- (d) consider possible changes in the strategic situation which have a bearing on the provisions of the Treaty;
- (e) agree upon procedures and dates for destruction or dismantling of ABM systems or their components in cases provided for by the provisions of this Treaty;
- (f) consider, as appropriate, possible proposals for further increasing the viability of this Treaty, including proposals for amendments in accordance with the provisions of this Treaty; and,
- (g) consider, as appropriate, proposals for further measures aimed at limiting strategic arms.

C. Organization and Functioning

The MOU establishing the SCC clarifies basic organizational matters while leaving considerable discretion to the two Components on how the SCC actually operates. Each side is to be represented by a Commissioner and a Deputy Commissioner, assisted by such staff as they deem appropriate. As a negotiating forum, the SCC does not operate in isolation. The Commissioners and their staffs are representatives of their governments, and they work under instructions from their capitals. The SCC is not a judicial body: it is not empowered to render advisory opinions or legally binding judgements, it cannot apply sanctions, and it cannot order either Party to take action of any kind.

Commission sessions are held no less than two times per year, and may also be convened "as soon as possible, following

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reasonable notice, at the request of either Commissioner." The SCC is authorized to establish and approve regulations governing its procedures and other matters, and may amend them "as it deems appropriate." The SCC Regulations were established on May 30, 1973, as a Protocol to the MOU. The text of the MOU and the SCC Regulations are attached (Annex A).

The U.S. Component is organized and operates in accordance with directives from the NSC which are revised from time to time. In current practice, the U.S. Commissioner and the Deputy Commissioner are designated by the President, based upon the recommendations of the principal Executive departments and agencies participating in the National Security Council arms control policy and decision-making process. The U.S. Commissioner is assisted by an Executive Secretary and, on occasion, a Deputy Executive Secretary. Personnel for the Secretariat and for the advisory support and staff of the U.S. Component of the SCC also are drawn from the resources of the Executive departments and agencies involved. Each Executive department or agency provides one representative. Advisors or technical experts are provided as required. The Arms Control and Disarmament Agency (ACDA) has provided administrative and logistical support for the U.S. Commissioner and Secretariat in Washington, and for the entire Component during Commission sessions in Geneva.

The Soviet side of the Commission apparently is organized in a similar way, with the Commissioner, the Deputy Commissioner, Executive Secretary, and a staff of advisors and other support personnel coming from the USSR Ministries of Foreign Affairs and of Defense.

The Parties agreed in paragraph 8 of the SCC Regulations that the proceedings of the SCC would be conducted in private and may not be made public except with the express consent of both Commissioners. Brief public announcements are made at the opening and closing of each session.

SCC sessions usually are held in Geneva during the spring and fall, each session generally lasting about two months. As noted, special sessions may be held at any time. There have been two special sessions for the discussion of compliance matters, one called by each side. In addition, special sessions of the SCC were convened in 1977 and 1982 for the purpose of conducting reviews of the ABM Treaty, which were carried out in accordance with Article XIV, paragraph 2, of the Treaty.

The U.S. Commissioner, 1973-1976, was Mr. Sidney N. Graybeal (see Annex C for his comments); Dr. Robert W. Buchheim served 1977-1980 (see Annex D for his comments); Brigadier

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General John R. Lasater, USAF, was Acting U.S. Commissioner during 1981; and in March 1982, General Richard H. Ellis, USAF (Ret.), was designated Commissioner by the President. Dr. Buchheim and General Ellis were granted the rank of Ambassador, which requires Senate confirmation. Dr. Benson Adams was designated U.S. Deputy Commissioner in April 1987. He has had ten predecessors in that post, most of whom came from the Organization of the Joint Chiefs of Staff or the Office of the Secretary of Defense. Major-General G.I. Ustinov and Ambassador Viktor P. Karpov, the original USSR Commissioner and Deputy Commissioner, served in those positions from 1973 until March 1979, when they were succeeded, respectively, by Lieutenant-General Viktor P. Starodubov and Mr. Vadim S. Chulitsky. Lieutenant-General Starodubov was succeeded in 1986 by Major-General Vladimir I. Medvedev, who in turn, was succeeded by Major-General Vladimir A. Kuklev in 1988, the current Soviet SCC Commissioner.

The 1988 ABM Treaty Review was carried out in Geneva by a high level bilateral group convened for that purpose and was not associated with the SCC. The Review began on August 24, 1988, and concluded on August 31, 1988. In the course of the Review, the U.S. emphasized the importance of Soviet violations of the Treaty, especially the large, phased-array radar deployed near Krasnoyarsk. The U.S. made clear to the Soviets that the deployment of that radar constitutes a significant violation of a central element of the Treaty, and that it should be dismantled without preconditions. The Soviet Union did not agree to correct its violations without further delay and without preconditions. At the conclusion of the Review Conference, no joint statement was issued, and the Soviets were advised that unless the Krasnoyarsk radar is dismantled, it will continue to raise the issues of material breach and proportionate responses.

In addition, an ad hoc Experts Meeting was held in Geneva, October 31--November 2, 1988, to provide the Soviets an opportunity to describe alternative approaches to the resolution of the Krasnoyarsk radar violation. However, the Soviets made no new proposals that would have met U.S. criteria for correcting the violation. The Experts Meeting, like the 1988 ABM Treaty Review, was not associated with the SCC.

D. Accomplishments

The SCC convened its first session on May 30, 1973, and on that date brought into force the regulations that govern its operation. To date, there have been 36 sessions; the major agreements worked out in the SCC are described below to the extent possible consistent with observance of the privacy understanding.

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In June 1974, in implementation of Article XIII(e) of the ABM Treaty and Article VI of the Interim Agreement, two Protocols on Procedures for implementing the Interim Agreement and the ABM Treaty were completed in the SCC. They were signed for the United States by Secretary of State Kissinger and for the USSR by Foreign Minister Gromyko, in Moscow, on July 3, 1974. The provisions of these documents govern the dismantling or destruction of weapons systems and components in excess of those permitted by the Interim Agreement and the ABM Treaty; they also govern the replacement of certain older ICBM launchers, and launchers on older submarines, by ballistic missile launchers on modern submarines as permitted under the Interim Agreement.

In October 1976, the two SCC Commissioners signed a Supplementary Protocol to the July 3, 1974, Protocol regarding ABM systems and their components. The Supplementary Protocol governs replacement of ABM systems and their components within permitted ABM deployment areas, as well as the exchange of ABM system deployment areas. (The provisions of the ABM Treaty of 1972 had permitted two ABM system deployment areas; the Protocol to the ABM Treaty, which was signed at the Moscow Summit on July 3, 1974, limits each side to one such deployment area. The U.S., however, has the right to exchange its ABM deployment area for defense of ICBMs for one in defense of the national capital, and the USSR has the right to exchange its ABM defense of the national capital for an ABM deployment area for defense of ICBMs.)

In addition to the work on procedures mentioned above, the United States and Soviet Union undertook in the SCC during a number of sessions beginning in late 1976, a significant effort to enhance implementation of the ABM Treaty. These negotiations were intended to clarify and refine mutual understanding of Treaty provisions, and thus to preclude by agreement activities that could be considered questionable. They were based on the belief that mutual understandings regarding implementation of specific provisions of a treaty in force can contribute to the mutual objective of maintaining and improving its overall viability and effectiveness. The results of that work are recorded in the 1978 Agreed Statement. Subsequently, agreement was reached, in June 1985, on a Common Understanding that further refines the 1978 Agreed Statement.

During 1979, the Commission worked on implementation procedures to govern the activities of both Parties under the provisions of the SALT II Treaty -- for example, detailed procedures for dismantling or destruction of strategic offensive arms in excess of the numbers permitted to each Party.

Items in connection with enhancing implementation of the 1971 Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War have also been taken up in the SCC. In 1975,

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discussions began on the subject of facilitating and speeding the transmission of the immediate notifications provided for under that Agreement. During the course of several SCC sessions, a Protocol concerning the use of immediate notifications in implementation of the Agreement on Measures was worked out, agreed, and signed by the SCC Commissioners; it became effective in 1976. Additional discussions in 1985 resulted in the conclusion, on June 14, 1985, of a Common Understanding, also relating to the use of immediate notifications (see Annex B).

E. Compliance Aspects of the SCC's Experience

In early 1975, the SCC became the main forum for handling compliance questions relating to the ABM Treaty (and to SALT I and SALT II when those agreements were in force or represented policy commitments). Because such compliance questions represent the most difficult aspects of the SCC's activities, their handling has tended to overshadow other business conducted by the SCC. (It should be noted that other arms control agreements have different arrangements for handling compliance issues. For example, the Intermediate-range Forces (INF) Treaty establishes a separate forum for compliance and implementation issues, the Special Verification Commission (SVC).)

In assessing Soviet compliance, the U.S. engages in a rigorous process in which evidence of Soviet actions is weighed against the provisions of the treaty in question. President Reagan has required a high standard of evidence before concluding that the USSR has violated agreements. For example, even though the nature of the Krasnoyarsk radar was clear soon after details of its construction were observed, only after data from an additional year of observation confirmed earlier assessments did the President decide formally to charge the Soviets with a violation.

Since January 1984, the President has sent six reports to the Congress on issues relating to Soviet noncompliance with existing arms control agreements. These Reports included a number of determinations of violations and probable violations of arms control agreements, including violations of the ABM Treaty.

Within the last year, the nature and current status of questions regarding compliance with the ABM Treaty have been summarized in three reports to the Congress. First, the President's December 1988 Report to Congress on Soviet Noncompliance With Arms Control Agreement, covering the period December 1987 to December 1988, addresses, inter alia, those questions raised in the SCC by the United States that have not been resolved. Secondly, the Commissioner's Report, February

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18, 1988, summarizes the discussions regarding questions raised in recent sessions of the SCC by either side. Finally, the ACDA-prepared report, Adherence to and Compliance with Agreements, March 11, 1988, (Pell Report) addresses those questions raised in the SCC by the Soviet Union. These Reports are comprehensive, and no attempt will be made to summarize their contents here.

These ABM Treaty compliance issues have been discussed extensively with the Soviets in the SCC as well as in diplomatic channels. Despite these efforts, Soviet responses, both denials and explanations, have generally not been consistent with the evidence and have not alleviated our concerns. Moreover, up to now, the Soviet Union has not corrected its activities that are inconsistent with the ABM Treaty--in particular the radar at Krasnoyarsk. However, the Soviets have now committed themselves, in the SCC session of November-December, 1988, to destruction of the ABM radar elements at Gomel, which are deployed in violation of the Treaty.

In preparing this report, the views of former SCC Commissioners were sought. Their comments on SCC effectiveness in the resolution of compliance issues are attached at Annex C (Commissioner Graybeal) and Annex D (Commissioner Buchheim). Commissioner Ellis's views, of course, also played an integral part in the preparation of this report.

III. SCC as a Compliance Forum

The question of how the SCC can be used more effectively to resolve ABM Treaty compliance issues arises because few serious compliance problems have been resolved by the SCC. However, this is not a matter of SCC failure to resolve compliance concerns; it is one of Soviet unwillingness to meet treaty obligations. Given the Soviet Government's unwillingness to correct its activities that do not comply with treaty obligations, the SCC became a forum in which the U.S. has for years "discussed" its concerns, often with unsatisfactory results.

It is important to emphasize generally, and particularly in connection with issues concerning compliance, several points about the nature of the SCC. First, the Commission does not operate independently. The SCC is a joint body established by the Governments of the United States and the Soviet Union to deal with all aspects of implementation of agreements within its scope. The Commissioners operate in accordance with instructions from the highest levels of their respective Governments, and the results of their joint work are subject to government approval. Second, the Governments of the United States and the Soviet Union do not bring matters before the SCC

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as if it were a court or third Party. Rather, they use the SCC as a direct-contact forum in which their authorized representatives can work on whatever matters related to their bilateral arms control agreements that the two Governments wish to raise. Third, the effectiveness of the SCC is entirely dependent upon the willingness not only of the United States Government but also the Soviet Government to work to resolve problems brought before the Commission.

The Reagan Administration has used the SCC to ensure that U.S. concerns are presented to the Soviet Union in great detail. There are no cases where the Soviet Union does not clearly understand the nature of the U.S. compliance concerns, although the Soviets have claimed in several cases that the United States has not provided sufficient information to enable them to understand the specific event or activity that is the source of our concern. The Soviets repeatedly deny that they are taking, or have taken, any actions that are inconsistent with the provisions of the ABM Treaty. A case in point is the commitment of the Soviet Union to destroy the Flat Twin ABM radar and Pawn Shop van, a component of an ABM system deployed at Gomel, in response to the U.S. finding that deployment of such radars constitutes a violation of the ABM Treaty. Despite this commitment, the Soviets nonetheless claim that the presence of these radars in no way contradicts the provisions of the ABM Treaty.

In the case of the Soviet radar elements at Gomel, the Soviet action, when implemented and verified by the U.S., will remove our concerns about the Gomel issue. However, in other cases, the Soviets frequently seek to convey the impression that they are addressing our concerns in a responsible fashion, when they have not taken any actions which in fact resolve the issues which have been clearly laid before them; they often also make counter charges about U.S. systems. The Soviets have used both these tactics in the case of the illegal Soviet radar at Krasnoyarsk.

IV. Effectiveness of the SCC

There are several approaches to the resolution of compliance issues:

--When and if the U.S. concludes that a case of noncompliance has occurred, actively seek to highlight the problem, clearly state the standards that the US expects the Soviet side to meet and pressure the USSR to return to compliance, e.g. by ceasing noncompliant activities or dismantling noncompliant systems;

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--Once the Soviets have decided to meet U.S. concerns, address the specific technical steps to be taken.

--In appropriate situations, negotiate common understandings or agreed statements that clarify an ambiguity or close a "loophole".

The SCC can be useful in defining the precise nature of a problem and in exploring each country's understanding of relevant legal and technical issues. The SCC also can be used effectively to resolve issues when both sides believe an appropriate resolution is possible through negotiation of agreements that close "loopholes" or eliminate ambiguities, thus avoiding future cases of noncompliance. (However, even here, our experience has been that the Soviets will seek to exploit any remaining ambiguities.)

However, because of the high standard of proof we apply to compliance issues, technical assertions by the other side in the SCC or elsewhere cannot by themselves resolve our concerns about specific cases of noncompliance. Once the U.S. has reached a significant level of concern about a compliance issue and directly seeks to press these compliance concerns on the Soviets with the aim of changing or reversing Soviet actions, the SCC should be just one of several diplomatic fora available to highlight to the Soviets the nature and degree of U.S. concern. Indeed, the SCC, by the technical focus of its composition, may be less well suited than other channels or fora as the main locus of such efforts, though it may be useful for any supplementary technical discussions and for discussions on the specifics of resolution of an issue, once the basic commitment to do so is made.

Accordingly, the above discussion suggests that we can best use the SCC if we seek to focus its efforts on:

--clarification of treaty ambiguities and creation of detailed procedures to implement existing agreements and commitments;

--discussion of potential common understandings of existing obligations and, if appropriate, new measures designed to deal with potential compliance concerns or substantive weaknesses in existing agreements; and,

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--as appropriate, supplementing our diplomatic efforts and our approaches at senior levels, providing explanations of the legal and factual basis on which the U.S. has reached compliance judgments.

V. Conclusions

We note that formal compliance fora like the SCC are well suited for technical work such as implementation procedures, or negotiation of additional measures or common understandings of existing obligations (where the sides say they disagree about the practical impact of existing obligations).

However, it is unreasonable to expect the SCC alone to resolve cases of deliberate noncompliance with the ABM Treaty, and this fact was reflected in the Treaty itself. For example, Article XIII of the ABM Treaty provides that the SCC will "consider questions concerning compliance which may be ambiguous," will "provide on a voluntary basis such information as either Party considers necessary to assure confidence in compliance," and will "consider questions involving unintended interference with NTM." No mention is made of the "resolution" of cases of intentional noncompliance.

The U.S. experience in dealing with the Soviet Union shows that the SCC can play an important facilitative role, but that resolution of compliance issues rests primarily upon U.S. willingness to press its compliance conclusions, at the highest levels if necessary, and upon Soviet willingness to comply with its treaty obligations and to respond to U.S. concerns by correcting noncompliant activities.

Recent events in the SCC confirm this view. As noted earlier, the Soviet Government informed the United States in the SCC that, in response to our concerns, it plans to destroy the Flat Twin ABM radar and Pawn Shop van located at Gomel. This decision was not the result of any new "more effective" approaches undertaken by the SCC. On the contrary, this Soviet commitment on Gomel, which the United States welcomes, is the product of decision in Moscow and follows U.S. efforts in a variety of channels, including the SCC, high-level meetings, and the 1988 ABM Treaty Review, to make clear that the radar elements deployed at Gomel constitute a Treaty violation that has to be corrected. It appears that, at least in the case of Gomel, such persistent U.S. efforts to press the Soviets to comply with the ABM Treaty may have paid off. On the other hand, the Soviets to date have been unwilling to correct the longstanding Krasnoyarsk ABM radar violation -- a significant violation of a central element of the ABM Treaty -- despite continued U.S. efforts in the same channels.

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Over the years, we have repeatedly made clear to the Soviets our compliance concerns; our positions on these issues are well known to the Soviets. The SCC provides opportunities for the Soviets to resolve our compliance concerns, but alternate channels -- traditional diplomatic channels or ad hoc meetings -- are available as well. The question is not so much one of SCC effectiveness in this compliance role, since our concerns have been raised in a wide range of fora, but rather whether the Soviet Government is willing to take advantage of these opportunities to correct its noncompliance with arms control agreements.

The SCC can best and most effectively be used to strengthen compliance by clarifying and reinforcing Treaty obligations. The U.S. will continue to press for resolution of individual compliance issues in the SCC. However, the U.S. will not hesitate to use other appropriate channels to press the Soviet Government to correct those activities inconsistent with its treaty obligations.

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ANNEX A

MEMORANDUM OF UNDERSTANDING BETWEEN
THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND
THE GOVERNMENT OF THE UNION OF SOVIET SOCIALIST REPUBLICS
REGARDING THE ESTABLISHMENT OF A STANDING CONSULTATIVE COMMISSION

I.

The Government of the United States of America and the Government of the Union of Soviet Socialist Republics hereby establish a Standing Consultative Commission.

II.

The Standing Consultative Commission shall promote the objectives and implementation of the provisions of the Treaty between the USA and the USSR on the Limitation of Anti-Ballistic Missile Systems of May 26, 1972, the Interim Agreement between the USA and the USSR on Certain Measures with Respect to the Limitations of Strategic Offensive Arms of May 26, 1972, and the Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War between the USA and the USSR of September 30, 1971, and shall exercise its competence in accordance with the provisions of Article XIII of said Treaty, Article VI of said Interim Agreement, and Article 7 of said Agreement on Measures.

III.

Each Government shall be represented on the Standing Consultative Commission by a Commissioner and a Deputy Commissioner, assisted by such staff as it deems necessary.

IV.

The Standing Consultative Commission shall hold periodic sessions on dates mutually agreed by the Commissioners but no less than two times per year. Sessions shall also be convened as soon as possible, following reasonable notice, at the request of either Commissioner.

V.

The Standing Consultative Commission shall establish and approve Regulations governing procedures and other relevant matters and may amend them as it deems appropriate.

VI.

The Standing Consultative Commission will meet in Geneva. It may also meet at such other places as may be agreed.

Done in Geneva, on December 21, 1972, in two copies, each in the English and Russian languages, both texts being equally authentic.

For the Government
of the
United States of America

For the Government
of the
Union of the Soviet Socialist
Republics

STANDING CONSULTATIVE COMMISSIONREGULATIONS

1. The Standing Consultative Commission, established by the Memorandum of Understanding between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics Regarding the Establishment of a Standing Consultative Commission of December 21, 1972, shall consist of a US component and Soviet component, each of which shall be headed by a Commissioner.
2. The Commissioners shall alternately preside over the meetings.
3. The Commissioners shall, when possible, inform each other in advance of the matters to be submitted for discussion, but may at a meeting submit for discussion any matter within the competence of the Commission.
4. During intervals between sessions of the Commission, each Commissioner may transmit written or oral communications to the other Commissioner concerning matters within the competence of the Commission.
5. Each component of the Commission may invite such advisers and experts as it deems necessary to participate in a meeting.
6. The Commission may establish working groups to consider and prepare specific matters.
7. The results of the discussion of questions at the meetings of the Commission may, if necessary, be entered into records which shall be in two copies, each in the English and the Russian languages, both texts being equally authentic.
8. The proceedings of the Standing Consultative Commission shall be conducted in private. The Standing Consultative Commission may not make its proceedings public except with the express consent of both Commissioners.
9. Each component of the Commission shall bear the expenses connected with its participation in the Commission.

UNCLASSIFIEDANNEX BAgreements Concluded or Negotiated in the SCC

<u>Agreement</u>	<u>Date</u>
1. MOU Regarding Establishment of the SCC	December 21, 1972
2. Protocol on Regulations of the SCC	May 30, 1973
3. Protocol on Procedures Governing Replacement, Dismantling, or Destruction, and Notification Thereof, for Strategic Offensive Arms	July 3, 1974
4. Protocol on Procedures Governing Replacement, Dismantling or Destruction, and Notification Thereof, for ABM Systems and Their Components	July 3, 1974
5. Supplementary Protocol to the Protocol on Procedures Governing Replacement, Dismantling, or Destruction, and Notification Thereof, for ABM Systems and Their Components of July 3, 1974	October 28, 1976
6. Protocol on the Use of Immediate Notifications in Implementation of the Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War Between the USA and the USSR of September 30, 1971	September 30, 1976
7. Agreed Statement Regarding the Protocol on Immediate Notifications	May 25, 1977
8. Protocol on the First Review of the ABM Treaty and Joint Communique	November 21, 1977
9. Agreed Statement Regarding Certain Provisions of the ABM Treaty	November 1, 1978
10. Joint Draft Text of Protocol on Procedures Governing Replacement, Conversion, and Dismantling or Destruction of Strategic Offensive Arms	December 13, 1979
11. Joint Draft Text of Protocol on Procedures Governing Dismantling or Destruction of Fractional Orbital Missiles and Their Launchers	December 13, 1979
12. Joint Draft Text of Protocol on Procedures Governing Advance Notifications of Planned ICBM Launches	December 13, 1979

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| 13. Protocol on the Second Review of the ABM Treaty and Joint Communique | December 15, 1982 |
| 14. Common Understanding to the November 1, 1978, Agreed Statement | June 6, 1985 |
| 15. Common Understanding to the 1971 Agreement on Measures | June 14, 1985 |

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Annex C

Sidney N. Graybeal
10101 Langhorne Court
Bethesda, Maryland 20817

20 May 1988

The Honorable George F. Murphy, Jr.
Deputy Director
Arms Control and Disarmament Agency
Washington, D.C. 20451

George
Dear Mr. ~~Murphy~~:

I appreciate the opportunity to comment on the ACDA report on "Improving the Effectiveness of the SCC" dated 4 May 1988. The background information is factual and useful. The overall coverage of the report is appropriate to the mandate. I am in agreement with the basic thrust and overall conclusions; however, I would like to note several points which I believe could be helpful in clarifying portions of the report and in improving the effectiveness of the SCC.

I take strong exception to former Secretary Weinberger's views, particularly his statement that "the SCC has failed to resolve any significant compliance issue" I believe that this statement is inconsistent with former Secretary of State Cyrus Vance's report to the Chairman of the Committee on Foreign Relations, U. S. Senate, dated 21 February 1978 (Selected Documents No. 7) and Department of State Special Report 55 on "Compliance with SALT I Agreements" dated July 1979.

On page 9, the statement is made that "the Soviet Union has not been forthcoming in providing detailed technical data to support its claims of Treaty compliance." In my view, during the extensive exchanges on the "III-X Silo" ("Launch Control Facilities"), Soviet Commissioner Ustinov provided extensive technical details on the construction and operations of these silos as compared to ICBM silos; this information was informative and useful in understanding the issue and in its final resolution.

In the second and third paragraphs of the "Conclusions," I would urge that the "other diplomatic channel" be utilized to reinforce U. S. positions being taken in the SCC prior to removing the issue to another forum or channel. Such reinforcement would assist the SCC in resolving the issue; this was the case during my tenure as U. S. Commissioner.

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The Honorable George F. Murphy, Jr.
20 May 1988
Page Two

There are two additional points which are not covered in the report which you may wish to consider. First, in my view, all clarifications of existing treaties such as the 1978 Agreed Statement and its associated 1985 Common Understanding should be unclassified and made public. These documents are an essential part of either clarifying or updating the Agreements, and as such should be available in an unclassified document to all people concerned with the Treaty. This is particularly true for the Agreed Statement and Common Understanding associated with the ABM Treaty, and will be equally applicable to any future arms control agreements. We should inform the Soviets that we are going to release the 1978 Agreed Statement and the 1985 Common Understanding associated with the ABM Treaty because the clarifying documents are essential to understanding the ABM Treaty. (We need not, and should not, request their permission.) We should also advise the Soviets that this will be our practice on all such future clarifications.

Second, in my view, the U. S. Commissioner and Deputy Commissioner should report directly to the National Security Advisor, and receive instructions directly from the President via the National Security Advisor. In addition, the U. S. Commissioner should have available a private, secure communications channel directly to the National Security Advisor to clarify any ambiguities in the instructions, and to discuss critical issues associated with implementation of the instructions.

As a general observation to enhance the understanding and utility of the SCC, I would suggest that the U. S. Commissioner prepare an unclassified version of his report to the President after each session of the SCC, or annually if this is considered to be more efficient. Such a report could be prepared without compromising the "confidentiality" principle contained in paragraph 8 of the Regulations; the report would summarize the results without providing data on the "proceedings" per se.

I hope these comments and observation prove useful in your considerations on improving the SCC and similar forums. As you know, I am a firm believer in the necessity and utility of such forums, and will always be available to participate in them should you so desire.

Sincerely,

Sid

Sidney N. Graybeal
Former SCC Commissioner

Annex D

312 East State Avenue
Phoenix, AZ 85020
May 23, 1988

Mr. George F. Murphy, Jr.
Acting Director
U.S. Arms Control & Disarmament Agency
320 Twenty-first Street, N. W.
Washington, D. C. 20451

Dear Mr. Murphy:

Thank you for your letter of May 11, 1988, concerning the U.S.-USSR Standing Consultative Commission (SCC).

Colonel Milner has phoned me to confirm his designation as point of contact. As of this present date, I have no questions to put to him.

I cannot now promise to give you my complete comments by May 25, 1988; but I will come as close as I can. Accordingly, this letter will be the first of two in reply to yours of May 11, 1988.

All of the following items deal mainly with editorial matters and they are directed to the draft, dated May 9, 1988, entitled Improving the Effectiveness of the SCC, attached to your letter of May 11, 1988.

(1) The title of the draft seems not to be consistent with the legislative charge, recited in draft page 1, to "conduct a study to determine how the Standing Consultative Commission could be used more effectively to resolve arms control compliance issues (the underlining is mine). There is a difference between "the effectiveness of the SCC" and "effectiveness of use of the SCC". The general reply on "SCC effectiveness" is as simple as simple could be: if there is a desire to resolve compliance questions, they can be resolved, and the institutional machinery of the SCC will substantially facilitate the process of resolution; if there is a desire not to resolve them, they will not be resolved.

(2) Reference is made (page 1) to "the Commissioner's Report" of February 18, 1988. If there is an unclassified version of that report, I will appreciate your sending a copy to me; otherwise, I will need to state that my comments are limited by not knowing what it says. as to compliance questions during its period of coverage.

(3) The Memorandum of Understanding (mentioned on page 1) establishing the SCC is at least as significant as the Regulations (mentioned on page 3 and in Annex A). That Memorandum of Understanding was published officially in 1974 as TIAS 7545; and the Regulations were published officially in 1974 as TIAS 7637.

For more detailed discussions of the SCC as an institution see:

-- my paper with Dan Caldwell, The US-USSR Standing Consultative Commission: Description and Appraisal; Working Paper #2, The Center for Foreign Policy Development, Brown University; May 1, 1983 (copy enclosed).

Mr. George F. Murphy, Jr.
May 23, 1988
Page 2

-- the paper by Robert Reford, Tracking Ambiguity; The Role of the Standing Consultative Commission in the Implementation of Arms Control Treaties; ORAE Extra-Mural Paper No. 40; Operational Research and Analysis Establishment, Department of Defense; Ottawa, Canada; December 1985 (copy enclosed).

(4) As to organization and functioning (page 2 and following), it ought to be noted that the U.S. SCC component (not delegation) is accredited with the Government of Switzerland as having the international legal status of a U.S. Mission. Therefore (to the sometime distress of the U.S. Representative to U.N. activities in Geneva), the U.S. SCC Component enjoys certain privileges and responsibilities that are unique to itself. This means, as a practical matter, that the U.S. Representative to UN agencies (the U.S. Mission, Geneva) has no access to substantive SCC information unless given to him by State/Washington. During the time known to me, requests for access have been turned down by the Secretary of State. It is, of course, only reasonable for the U.S. Representative, Geneva, and the U.S. SCC Commissioner to sustain comity as to administrative affairs and matters of that kind. For example, the general practice has been for the U.S. SCC Component to use the U.S. Geneva public affairs office to disseminate news releases on the convening and adjournment of SCC sessions. The jurisdictional prerogatives of the U.S. Embassy/Bern have, so far as I know, never become a matter of discussion.

(5) The U.S. Commissioner has not always been granted the title of Ambassador (see page 3), and there is no official record known to me that he will as a matter of routine; therefore, the Senate role involved is limited to the granting of that rank, not to designation as Commissioner.

(6) The information in page 3 about the Secretariat, etc., is evidently based on the provisions of a NASD (or whatever its current equivalent might be called); that operating document might be cited by current name, number and date.

(7) For completeness and precision, it should be noted on page 3 that the ABM Treaty reviews carried out in 1977 and 1982 were in accordance with Article XIV (paragraph 2) which provides that the Parties, at five-year intervals, "shall together conduct a review of this Treaty". It does not call for some kind of "review conference".

(8) The "privacy understanding" mentioned on page 4 ought to be clarified by reference to its underlying agreed record. I assume the reference here is to item 8 of the SCC Regulations.

(9) The text of Part F, page 5, overdoes use of the word "issue", a judgemental word going well beyond the word "question", which is the center of Article XIII of the ABM Treaty.

(10) Further in Section F (page 5) the table states that 10 SCC sessions were occupied with discussions of the Krasnoyarsk radar. At two sessions per year (excepting special sessions not noted) that would be five years of discussion -- that statistic would seem to warrant checking against the date of surfacing of the Krasnoyarsk construction.

Mr. George F. Murphy, Jr.
May 23, 1988
Page 3

(11) On page 6 and following there is a recital of comments of Mr. Weinberger on "SCC effectiveness". For my views on this recital, see chapter 10 by (Philip J. Farley and me) in U.S.-Soviet Security Cooperation; edited by Alexander L. George, Philip J. Farley and Alexander Dallin; Oxford University Press; 1988. Mr. Weinberger's same words are recited there more fully than in attachment to your letter of May 11, 1988 -- and, in addition, there is recited some rather different views presented by Assistant Secretary Richard Perle on March 14, 1984, in reply to a question from Senator John Tower, as follows:

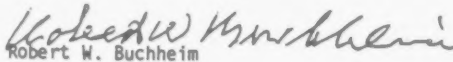
Senator Tower. "Both you, today, and Ambassador Rowney, in a recent appearance before the Committee have expressed serious concern about the effectiveness of the Standing Consultative Commission (SCC) in resolving our concerns about Soviet non-compliance. What can be done to enhance the SCC effectiveness?"

Secretary Perle. "The issue is not really the SCC. The SCC is not a judicial commission. It does not make decisions, and it cannot order the Soviet Union to comply with arms control agreements. It is merely a negotiating forum. The problem is Soviet unwillingness to live up to the obligations that they have undertaken, not SCC effectiveness."

"I have put emphasis on the failure of the SCC to resolve compliance concerns because previous Administrations, in efforts to sell unverifiable arms control agreements to Congress, have created a virtual mythology about it. The fact of the matter is that serious compliance problems have generally not been resolved by the SCC or in any other manner."

In my second letter to you, I will address Parts IV, V, VI and other substantive items.

Sincerely,


Robert W. Buchheim

Enclosures

312 East State Avenue
Phoenix, Arizona 85020

June 25, 1988

The Honorable George F. Murphy, Jr.
Deputy Director
U.S. Arms Control and Disarmament Agency
320 Twenty-first Street, NW
Washington, D.C. 20451

Dear Mr. Murphy:

This is my promised second letter, perhaps late but as soon as feasible, on the ACDA draft "Improving the effectiveness of the SCC" (May 9, 1988) enclosed with your letter to me of May 11, 1988. This letter contains comments, marked with item and page numbers in the ACDA draft, and it also contains comments on other items as invited in your letter of May 11, 1988. Thank you for extending to me the opportunity to set forth these comments on an important subject.

My specific comments are as follows:

(A) "Effectiveness" of the SCC: I take the various formulations of the "effectiveness" question to refer to the potential for and actual performance of the SCC in serving national security interests, within its charter (Item B, page 1), and the specific instructions issued by the Governments of the U.S. and the U.S.S.R. Attention also needs to be given to promotion of wider public understanding of the institution and its functioning.

(B) Common denominators: The search (Item IV, page 8) for common denominators among varying expressions of view (Item III, page 6) is entirely appropriate and can lead to constructive reconciliation of views (including the comments by Richard Perle noted in my first letter, as well as expressions of others carefully searched out by Robert Reford in his Canadian ORAE report), except for the single case of the intemperate expressions (Item A, page 6) of Mr. Weinberger taken from his letter to President Reagan -- I find in the Weinberger comments no significant denominators, common or uncommon, but only dimensionless numerators.

(C) On "varying views" (Item II, page 6): "These varying views" should, for substantive reasons, be replaced by something like "some varying views."

(D) Expectations: What were thought to be the expectations as to the "effectiveness" of the SCC (Item III, page 6) when the SALT I Interim Agreement, SALT II, and the ABM Treaty were undertaken as U.S. commitments? The U.S. negotiators of those agreements would be appropriate sources.

(E) Soviet understanding of U.S. claimed compliance concerns (Item IV, page 8): there are some items -- including the unclassified reports on the Krasnoyarsk radar -- that I also do not understand. That particular item seems to me to be an exercise in trivializing an important collection of problems.

(F) Soviet denials (Item IV, page 8): all governments deny wrongdoing, as a matter of sovereign routine.

(G) Soviet provision of "detailed technical data" (Item IV, page 9): This claim is not correct. Further, there are at least two other questions at stake: (i) what "details" should we ask for explicitly, in consideration of protection of intelligence sources and methods?; and (ii) what kinds of "detailed technical data" is the U.S. willing to supply in response to Soviet challenges? (Message: arms control agreements between the U.S. and the U.S.S.R. are bilateral agreements, not unilateral advisory bulletins.)

(H) "In each case the Soviets have suggested" (Item IV, page 9): This claim will not stand up well in comparison with the factual record, and does not warrant appearance under a heading "Analysis" (Item IV, page 8).

(I) "Improving the effectiveness of the SCC" (Item V, page 9): as written this is not a useful part of the draft report. It seems to me that it is a recitation of a turf argument as to the primacy of "policy" over "technical" factors, and a remnant of confrontation politics. This part of the draft does, however, touch the central question: can either the

U.S.S.R. or the U.S. "enforce" anything important on the other, or is it necessary to accept a "no" answer to this question and improve the effectiveness of consultative arrangements on a broad front -- as laid down in the charter of the SCC, and as is essentially suggested in the Congressional charge to your present study.

Most seriously, the main problem with Item V (page 9) of the ACDA draft is the implication that the SCC can (should?) be made more "effective" in carrying out its job by making the job description ever more small. That is no desirable way to use the SCC institution to serve the national security interest.

The factual situation, like it or not, is that the SCC operates diplomatically in the practical (and perhaps eternal) zone between "enforcement", which no element of either Government can do, and fiddling with "technical" details, which are of marginal importance to policy. This is, in essence, the situation being coped with by the military services since 1947, and which gave rise to modern arms control concepts, largely at first in the United States Air Force.

(J) Item VI, conclusions, page 10: This discussion of consultative potentialities is much better balanced than that in Item V, and the two should be brought together. The point that "It is unreasonable to expect the SCC to resolve cases of deliberate non-compliance" is correct and important; neither the Government of the U.S. nor of the USSR is in a position to "enforce" anything important on the other, through the SCC or any other forum, and that simple fact ought to be said straight out. Acceptance of that plain fact brings us back to the importance of nurturing institutionalized consultative arrangements.

(K) "Numerous cases of Soviet noncompliance" (Item VI, page 10): I do not agree with the gross claim here, and therefore, I do not agree with the subsequent prescription about SCC operations.

(L) "Technical Nature" of the SCC (Parts V and VI, pages 9-11): pushed much farther this line of demeaning discussion can drive qualified "technical" people (technology, legal, military) away from creative cooperation in the "political" operation.

(M) "Fixed Compliance Judgements" (Item VI, page 10): the combination of "fixed judgements" and "fixed political/policy" is a form of oxymoron. If there is anything fixed in politics it is that nothing is fixed.

(N) More on distinctions between "technical" and "political/policy": in my opinion, such distinctions should only be set forth when needed -- they are not inherently necessary or useful, and generally are not helpful in consultation.

(O) The U.S. Commissioner and guidelines on operations: The Commissioner's designation process and SCC operations rules have, to date, been embodied in classified Presidential directives; there is no evident reason for keeping these papers in a classified status. The choice of Commissioner should be influenced by the candidates' ability to deal with "technical" and "policy" features and their inevitable interaction. He should be, to the extent practical, non-partisan in view for, at least, the reason that he is likely to be responsible for implementation, during an administration of party A, with an agreement put in place by an administration of party B.

(P) The U.S. Deputy Commissioner: for many years the practice was to designate as Deputy Commissioner an active duty officer in the J-5 portion of the Organization of the Joint Chiefs of Staff. Recent departure from that practice was, in my opinion, unwise (this is in no way an ad hominem comment -- I do not know the present Deputy Commissioner). In my experience it was, on many occasions, of great value to be able to tap directly the standing traffic channels between JCS and the uniformed military services to obtain views, from service functions at the program level, on U.S. or U.S.S.R. implementation proposals. A "coordinated" OSD/ISA response is often not a good substitute for a direct shot to and from a military service.

(Q) INF connection: strategic arms and INF systems are defined formally as being different from one another, and regulated by different regimes; however, they stand cheek by jowl and the opportunities for ambiguity, overlap and circumvention are there. An appropriate specific arrangement will be needed between the U.S. SCC Commissioner and the U.S. Commissioner on the Special Verification Commission, for timely exchange of information and ideas.

(R) Implementability (close to "expectations", above) past agreements, e.g. SALT II, contain some provisions which, in my opinion, cannot be implemented without leaving significant regions of doubt -- for example some cases that call for dependence on the functionality - related - observable - differences (FRODs) concept, and the bases for distinguishing between heavy bombers and other long-range airplanes. Construction of new agreements should

include explicit addressing of this question of practical feasibility of implementation, and in the case of agreements regulating strategic arms the U.S. SCC Commissioner should be involved in feasibility assessments.

(S) Soviet complaints: the Congressional charge to your study asks "how the Standing Consultative Commission could be used more effectively to resolve arms control compliance issues." This must include resolution of Soviet complaints about U.S. actions, to their satisfaction, and without undue impact on U.S. options.

An important element of this task, of course, is for the U.S. to keep a clean compliance record for the U.S. Commissioner to defend.

Another is to resist the temptation to talk the Soviets into "resolutions" of their complaints that set undesirable precedents. For example, U.S. persistence in the 1970's in use of environmental shelters over Minuteman launchers cannot have strengthened understandings not to use measures that conceal from national technical means of verification features subject to provisions of agreements.

(T) Soviet ideas on SCC effectiveness: the U.S. should be open to Soviet ideas on "how the Standing Consultative Commission could be used more effectively to resolve arms control compliance issues."

(V) Forward-looking consultations: if a clear and substantial violation occurs, its "resolution" can be difficult or virtually impossible. The best course, by far, is to try to see a potential compliance problem developing and head it off by consultation. Article XIII of the ABM Treaty enables consultation in the SCC on anything that can affect the strategic situation, and ought to be brought under negotiation; this would include mutual consideration of the implications of potential new forms of strategic arms and operations.

(V) Improved homework: the effectiveness of the U.S. SCC Component is heavily dependent on the quality of the homework that lies behind the instructions to the Commissioner, so any steps to improve the quality of that homework can have a significant positive effect. This homework is largely the product of inter-agency processes under the hand of the National Security Council Staff.

Sincerely,



Robert W. Buchheim

THE WHITE HOUSE
WASHINGTON

March 10, 1989

MAR 1 1989

Dear Mr. Chairman:

I am pleased to transmit the enclosed report on the adherence of the United States to obligations undertaken in arms control agreements and on problems related to compliance by other nations with the provisions of bilateral and multilateral arms control agreements to which the United States is a party.

This report, updating last year's report, meets the requirements of Section 52 of the Arms Control and Disarmament Act, as amended by the Arms Control and Disarmament Amendments Act of 1987. It was prepared by the Director of the U.S. Arms Control and Disarmament Agency in coordination with the Secretary of State, the Secretary of Defense, the Secretary of Energy, the Chairman of the Joint Chiefs of Staff, and the Director of Central Intelligence.

In previous reports to the Congress, the United States has made clear its concerns about Soviet noncompliance. These concerns remain. The United States Government takes equally seriously its own commitments to arms control agreements and sets rigid standards and procedures for assuring that it meets its obligations. The United States has been and remains in compliance with all current treaty obligations and political commitments.

This report is unclassified and suitable for general release. However, a classified attachment, providing additional information not available in unclassified form, is being provided under separate cover.

Sincerely,



The Honorable Claiborne Pell
Chairman
Committee on Foreign Relations
United States Senate
Washington, D.C. 20510

ADHERENCE TO
AND
COMPLIANCE WITH AGREEMENTS

Prepared by
U.S. Arms Control and Disarmament Agency

January 18, 1989

I. U.S. COMPLIANCE WITH ARMS CONTROL AGREEMENTS

a. Effective arms control requires that Parties comply fully with the arms control obligations and commitments they have undertaken. Compliance is a cornerstone of international law. The U.S. approach to compliance is deeply rooted in our own legal system and a set of fundamental principles and values which govern American attitudes toward both arms control and international obligations. Our deep-seated legal tradition, a political commitment to arms control agreements that can enhance our security and that of our allies and friends, and our open society are basic and enduring factors. They create powerful incentives to comply with agreements to control nuclear and other weapons. Legal and institutional procedures to ensure compliance have been established, and they reflect the seriousness with which these obligations are taken and reinforce these underlying principles. Attachment 1 details these procedures.

b. Pursuant to Section 36 of the Arms Control and Disarmament Act, ACDA provides on a yearly basis a description of all major Department of Defense (DoD) programs and an analysis of the arms control implications of each program. Reference Fiscal Year 1989 Arms Control Impact Statements, April 1988.

c. The March 1988 Report on Adherence to and Compliance with Agreements addressed the compliance charges made against the United States by the Soviet Union. Some of these charges date back over several years. The March 1988 Report noted that there has been a clear attempt on the Soviet Union's part to invent counter-charges in response to legitimate U.S. concerns regarding Soviet noncompliance. In all cases, once the issue was clearly defined, the U.S. Government has provided full responses that should have removed any doubt that the U.S. is in compliance with all treaty obligations and political commitments. Perhaps the most blatant example of these Soviet counter-charges concerns Soviet claims that the U.S. early warning radar modernization at Thule, Greenland, violates the ABM Treaty and that the planned modernization of a similar radar at Fylingdales, U.K., is contrary to the ABM Treaty. These charges were made in response to continuing U.S. charges that the Soviet deployment of the large phased-array radar (LPAR) at Krasnoyarsk violates that Treaty. Neither side proposed, and the Treaty does not contain, any limitations on the modernization by replacement of permitted early warning radars which existed at the time the Treaty entered into force. Put another way, the ABM Treaty "grandfathers" the Thule and Fylingdales sites for ballistic missile early warning purposes, not merely the specific equipment there at the time of the signing of the ABM Treaty. The United States has clearly told

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the Soviet Union that Soviet proposals which ask the U.S. to pay a price to secure Soviet compliance with the ABM Treaty are unacceptable.

In the case of the INF Treaty, the Soviets have raised several questions about specific activities in diplomatic channels and in the Special Verification Commission. In most cases, their concerns proved to be groundless and the Soviets dropped the issue, and in two cases, their questions identified errors in implementation which the U.S. took appropriate steps to correct. These Soviet concerns and the pertinent facts are summarized in the classified version of the Report.

This Report addresses, *inter alia*, Soviet charges of U.S. noncompliance that have been raised subsequent to the March 1988 report.

II. Other Nations' Compliance with Arms Control Agreements

a. The President's December 1, 1988, Report to Congress on Soviet Noncompliance with Arms Control Agreements, covering the period December 1987 to December 1988, details the significant issues involving Soviet noncompliance.

Specific third-country actions since the last Report inconsistent with their obligations under the 1972 Biological and Toxin Weapons Convention and the 1925 Geneva Protocol on Chemical Weapons are outlined in the classified version of the Report.

The United States has confirmed that Iraq used lethal chemical weapons (CW) every year from 1983 to 1988 against Iranian forces. Iraq also used lethal CW against Iraqi and Iranian Kurdish villages prior to the 1988 cease fire. In August 1988, Iraq used lethal CW against the Iraqi Kurds who sided with Iran during the Gulf war. Iran used limited amounts of lethal CW against Iraqi forces during 1988. The United States has made several demarches since 1983 to the Iraqi government, attempting to dissuade Iraq from further use of these weapons. The United States also sought the cooperation of allies and friends in this effort. In March 1984, the United States issued the first of several public statements which strongly condemn illegal CW use and point out there can be no justification for first use of such weaponry by any country.

In 1984, the United States imposed foreign policy export controls on certain chemicals useful in the production of chemical weapons to deny their export to Iran and Iraq in order to inhibit the further production and use of chemical weapons by

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these countries. In 1986, the United States extended these controls to include Syria, and in 1987 expanded the list of chemicals subject to control. Similar controls have since been implemented to varying degrees by 18 other Western nations.

Since January 1986, the U.S. banned all trade, including chemicals used in the production of chemical weapons, with Libya. In 1988 a concerted effort was initiated to stop exports by other countries to Libya, which was completing a large CW plant with substantial Western assistance. Libya reportedly used CW on Chadian forces in 1987. The United States has been in the forefront of international efforts to halt the proliferation and use of chemical weapons. In addition to the imposition of export controls described above, the United States actively participates in informal consultations on CW use and proliferation led by Australia and met with the Soviet Union twice in 1986, once in 1987, and once in 1988 to discuss the prevention of chemical weapons proliferation.

Since early 1985, the United States has been making demarches to governments whose commercial firms have been determined by the United States to be actually or potentially involved in Gulf War belligerents' and their allies' efforts to procure chemicals for use in manufacturing chemical weapons.

The United States continues to support efforts in the United Nations to condemn the use of chemical weapons wherever and whenever it occurs and to conduct investigations of CW use. In 1988, the U.N. passed by consensus a resolution to this end with special emphasis on broadening support for the role of the Secretary General in investigations of CW use by continuing the work of the Experts Group to develop investigative procedures; other points concerned curbing the spread of CW and condemnation of CW use. At the opening of the U.N. General Assembly President Reagan proposed an international conference, which convened in Paris during January 7-11, 1989. Beyond the expectations of many, its 149 participants produced a consensus document condemning illegal CW use and proliferation. At the conclusion of the conference the participating states stressed "the necessity of concluding, at an early date, a convention on the prohibition of the development, production, stockpiling, and use of chemical weapons."

b. The President's December 1, 1988, Report to Congress on Soviet Noncompliance with Arms Control Agreements briefly addresses the U.S. assessment of possible Soviet gains from each of the major issues addressed. The annual DoD publication Soviet Military Power also provides DoD's assessment of the impact of Soviet actions.

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c. An amendment to Section 52 of the Arms Control and Disarmament Act expands the requirements of this Report to include information on "actions taken by the Soviet Union and other nations with regard to the size, structure, and disposition of military forces in order to comply with such arms control agreements." On May 17, 1988, a supplement to the March 1988 Report was provided which addresses Soviet ABM-related dismantlements and Soviet actions in regard to certain aspects of the ABM Treaty, the SALT I Interim Agreement, and SALT II Treaty. These papers summarized the specific actions taken by the Soviet Union to dismantle and replace Soviet weapon systems accountable under these agreements during the period of U.S. adherence to the SALT I Interim Agreement and the SALT II Treaty. The U.S. ceased observance of the SALT I Interim Agreement and the SALT II Treaty due in part to multiple, uncorrected Soviet violations. Discussion of these actions will not be repeated here.

Soviet actions taken related to adherence to their arms control obligations, since the May supplement was provided, are discussed in Attachment 3 and in the classified version of this Report. The most recent of these agreements is the INF Treaty whereby U.S. and Soviet intermediate-range and shorter-range nuclear missiles will be completely eliminated within three years of the entry-into-force of the Treaty. The Soviets have made changes with regard to the size and disposition of Soviet intermediate-range nuclear forces since the Treaty was signed to meet their obligations under the Treaty. That Treaty is achieving its goal of eliminating an entire class of U.S. and Soviet missiles under conditions of strict verification. Specifically, since entry into force of the INF Treaty, the Soviets had moved their entire deployed force of shorter-range missiles and launchers into elimination facilities where their elimination is well under way. As of December 31, 1988, the Soviets have eliminated 102 SS-20 missiles and 90 SS-20 launchers in the presence of U.S. inspectors. As noted in the President's December 1988 Report to Congress on Soviet Noncompliance with Arms Control Agreements, however, the Soviets violated their legal obligations under the Treaty in several instances. In each case raised with the Soviet Union, our concerns have been resolved or are in the process of resolution. These cases, addressed in the unclassified and classified December 1988 Report on Soviet Noncompliance, are not addressed in this report.

After discussions in various U.S./Soviet diplomatic channels, the Soviet Union has made a commitment regarding procedures for dismantling or destroying the illegally deployed radars at Gornyy. The process is already underway. If fully carried out, this will be a constructive step, which, when

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verified, will satisfy U.S. concerns regarding the illegal deployment of these radars. The deployment of these radars in 1987 led to a finding of an ABM Treaty violation which was initially reported in the President's 1987 Report to Congress on Soviet Noncompliance with Arms Control Agreements.

It should be noted that nations take a variety of actions with regard to their military forces for a variety of reasons, only one of which may be to comply with arms control agreements. For example, older or obsolete systems may be retired from the inventory for reasons of cost effectiveness.

Attachments:

1. United States Compliance with Arms Control Agreements.
2. Soviet Charges of U.S. Noncompliance.
3. Compliance-Related Soviet Actions Taken in Regard to Arms Control Agreements

Attachment 1

UNITED STATES COMPLIANCE WITH ARMS CONTROL AGREEMENTS

There are three major U.S. institutional and legal procedures for ensuring that U.S. plans and programs remain consistent with international obligations. These procedures include internal Department of Defense controls, separate evaluations produced by the U.S. Arms Control and Disarmament Agency, and Congressional oversight.

In 1972, by direction of the President, the Department of Defense (DoD) established a process to ensure that all DoD programs complied with U.S. international obligations undertaken in the Strategic Arms Limitation Agreements.¹ Responsibility for monitoring and ensuring U.S. compliance was assigned to the Under Secretary of Defense for Acquisition (USD(A)). These responsibilities include: a) reviewing quarterly reports from each of the U.S. Armed Services and designated DoD agencies; b) submitting timely reports on U.S. compliance to the Secretary of Defense; c) providing general instructions and procedures as well as specific guidance as needed to the U.S. Armed Services; and d) conducting and directing inspections of U.S. Armed Services' activities.² The DoD General Counsel provides advice and assistance with respect to implementation of the compliance process and interpretation of arms control agreements.

The implementation of the process rests with the Services and Defense Agencies which must certify quarterly to the USD(A) that their programs comply with all U.S. international obligations and must establish internal procedures and offices

¹ Department of Defense Directive 5100.70, 9 January 1973, Implementation of Strategic Arms Limitation (SAL) Agreements, as amended by a SecDef memorandum of December 22, 1986, which rescinded those portions pertaining to observance of the Interim Agreement on Strategic Offensive Arms and the SALT II Treaty.

² Department of Defense Instruction S-5100.72 establishes general instructions, guidelines, and procedures for ensuring the continued compliance of all DoD programs with existing agreements, as amended by a SecDef memorandum of December 22, 1986, which rescinded those portions pertaining to observance of the Interim Agreement on Strategic Offensive Arms and the SALT II Treaty.

to monitor and ensure internal compliance. This process is facilitated by a DoD Compliance Review Group, chaired by USD(A) with Representatives from DoD General Counsel, the Under Secretary of Defense for Policy, and the JCS, which reviews U.S. programs with respect to compliance issues, prepares related reports, and responds to compliance matters as they arise.

Separate from and independent of the above DoD process, other procedures and mechanisms are in place to monitor U.S. compliance with international obligations. An independent evaluation of all DoD program elements meeting certain congressionally-mandated criteria³ is performed on an annual basis to determine whether these U.S. programs may have any impact on existing arms control obligations or on the arms control process itself. This evaluation is conducted by an interagency group chaired by the U.S. Arms Control and Disarmament Agency and is reported to the Congress in the annual Arms Control Impact Statement (ACIS) submitted at the same time as the President's budget request.

The interagency-approved ACIS provides annual documentation of the effects of U.S. defense programs on arms control and is provided to the Congress in both classified and unclassified versions. The unclassified version is subsequently published alternately by the House Committee on Foreign Affairs and the Senate Foreign Relations Committee and is available to the public through the Government Printing Office.

Finally, the Congress has required specific reports from the Executive Branch. These reports have involved specific programs, such as the one-time March 1984 Report to the Congress on U.S. Policy on ASAT Arms Control covering anti-satellite systems and the annual Report to Congress on the Strategic Defense Initiative, or it may be general, such as the annual report specifying the steps the U.S. has taken to ensure compliance with existing arms control agreements.

³ Section 36, Arms Control Impact Information and Analysis, added to the Arms Control and Disarmament Act by Section 146 of Public Law 94-141 (22 U.S.C. 2576).

Attachment 2

SOVIET CHARGES OF U.S. NONCOMPLIANCE

During the period covered by this Report, the Soviet Union has raised a number of charges of noncompliance against the United States. Some of these charges date back over several years. Once the issue was clearly defined, the U.S. Government has provided full responses that should have removed any doubt that the U.S. is in compliance with all treaty obligations and political commitments.

INF TREATY ISSUES

Since entry into force of the INF Treaty, both the U.S. and the Soviets have raised a number of concerns related to the Treaty. In any case where the U.S. believed that the Soviets had legitimate concerns regarding U.S. activities, we have taken the actions necessary to address those concerns. In other cases where the U.S. believed that the Soviet concerns regarding U.S. activities were unfounded, we have told them so.

ABM TREATY ISSUES

There has been a clear attempt on the Soviet Union's part to invent countercharges in response to legitimate U.S. compliance concerns related to the ABM Treaty. The Soviets have not made any new charges with regard to the issues raised in the March 1988 report, including SDI, Thule and Fylingdales, and several other issues. As detailed in the March 1988 Report, "Adherence to and Compliance with Agreements," these Soviet charges are false.

OTHER TREATY ISSUESThe Stockholm DocumentSoviet Allegation:

In October 1988, the USSR accused the U.S., the Federal Republic of Germany (FRG), and France of violating provisions of the Stockholm Document during military exercises conducted in the FRG in September 1988. At the follow-on Conference on Security and Cooperation in Europe (CSCE) in Vienna, the Soviets

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claimed that during their September 7-9 CDE inspection, their inspection team determined that several exercises, totaling some 170,000 troops, were conducted "according to a common plan." The Soviets asserted that because of this alleged "common plan," the exercises should have been notified as a single large exercise.

The Facts:

Four independent exercises were taking place on the territory of the FRG and during the timeframe cited in the Soviet accusation. Three of the exercises met the notifiable threshold, as specified under the Document, and had been properly notified as individual exercises. The fourth was an independent French maneuver well below the notifiable level. They were not under a single operational command, and, therefore, were not required to be notified as one exercise. The U.S. and FRG strongly rejected the Soviet allegation, stating that the respective forecasts and notifications were fully consistent with the Document. The Soviets refused to abandon the accusation of noncompliance (which concerned U.S. military activities) but modified their claim to assert that only the FRG was in violation. The FRG has denied this claim. We believe that the Soviet allegations were made for propaganda purposes and to support their negotiating positions at the next Conference on Confidence and Security Building Measures and Disarmament in Europe, scheduled to begin in early 1989.

Attachment 3

COMPLIANCE-RELATED SOVIET ACTIONS TAKEN
IN REGARD TO ARMS CONTROL AGREEMENTS

This attachment describes actions taken by the USSR related to adherence to the provisions of the INF Treaty and the ABM Treaty. In particular, it summarizes the specific actions taken by the Soviets to eliminate Soviet INF Treaty accountable systems and Soviet commitments during 1988 to correct the Gornel violation.

The paper does not address whether arms control obligations changed Soviet force plans that may have existed before the agreements were signed. Nor does it address circumstances where Soviet inaction had the effect of maintaining compliance. Finally, it does not address Soviet actions in regard to the SALT I Interim Agreement or the SALT II Treaty since these agreements were addressed in the May 1988 Supplemental Report and since the U.S. does not measure Soviet actions against these agreements to which the U.S. is not a party. U.S. decisions regarding strategic offensive force structure are now based on the nature and magnitude of the threat posed by Soviet strategic forces and not on the standards contained in the SALT I Interim Agreement and SALT II Treaty.

The President's December 1, 1988, Report to Congress on Soviet Noncompliance with Arms Control Agreements and previous Noncompliance Reports detail Soviet actions and should be read in conjunction with this report in evaluating Soviet arms control behavior. These reports state that there has been a continuing pattern of Soviet violation of some existing arms control agreements.

The INF Treaty

The INF Treaty is achieving its goal of eliminating an entire class of U.S. and Soviet missiles under conditions of strict verification. Soviet actions to comply with the Treaty provisions include: elimination of Treaty-limited systems and facilities and opening of Soviet facilities to U.S. inspectors.

Eliminations: Since entry into force, the Soviets have moved their entire deployed force of shorter-range missiles and launchers into elimination facilities. As of December 31, 1988, they had eliminated the following missiles and launchers:

- 102 SS-20 missiles
- 90 SS-20 launchers
- 38 SS-4 missiles
- 19 SS-4 launchers
- 300 SS-12 missiles
- 88 SS-12 launchers
- 80 SSC-X-4 missiles
- 6 SSC-X-4 launchers

Inspections: Between thirty and ninety days after the Treaty entered into force, the U.S. conducted baseline inspections in the Soviet Union and Eastern Europe. Beginning 90 days after entry into force, the U.S. right to conduct short-notice inspections at Soviet INF facilities came into effect. To date, the U.S. has carried out two short-notice inspections. The U.S. has also maintained a continuous presence at the Soviet missile production facility at Votkinsk, where SS-20 final assembly occurred before the INF Treaty entered into force, and where the SS-25 ICBM is currently being assembled. In addition, U.S. inspectors have observed Soviet elimination activities at eight different elimination facilities in the USSR: Kansk and Chita, where SS-20s have been eliminated by launch; Kapustin Yar, where SS-20s are being eliminated by explosive demolition; Sarny, where SS-20 launchers are eliminated; Lesnaya, where SS-4 missiles, launchers, and support equipment are being eliminated; Saryozek, where shorter-range missiles are being eliminated; Stankovo, where launchers of shorter-range missiles are being eliminated; and Jelgava, where SSC-X-4s were eliminated. The Soviets have cooperated with U.S. implementation of its inspection rights during all the inspections referred to above.

Issues and questions regarding Soviet noncompliance which have been discussed with the Soviets thus far have been resolved to U.S. satisfaction or are in the process of resolution. These issues are discussed in the December 1988 President's Report to Congress on Soviet Noncompliance with Arms Control Agreements, as are those steps taken by the U.S. and Soviet Union to resolve these issues.

The ABM Treaty

After discussions in various U.S./Soviet diplomatic channels, the Soviet Union has made a commitment regarding procedures for dismantling or destroying the illegally deployed radars at Gomel. The process is already underway. If fully carried out, this will be a constructive step, which, when

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verified, will satisfy U.S. concerns regarding the illegal deployment of these radars. The deployment of these radars in 1987 led to a finding of an ABM Treaty violation which was initially reported in the President's 1987 Report to Congress on Soviet Noncompliance with Arms Control Agreements.

United States Arms Control *ACDA Security*
and Disarmament Agency

Office of
Inspector General

Semiannual Report
to the Congress



*April 1 to
September 30, 1988*

United States Arms Control
and Disarmament Agency

Office of
Inspector General

Semiannual Report
to the Congress

*April 1 to
September 30, 1988*



United States Department of State

The Inspector General

Washington, D.C. 20520

The Honorable
William F. Burns, Director
U.S. Arms Control and
Disarmament Agency
Washington, D.C. 20451

Dear General Burns:

Enclosed is my semiannual report to the Congress on the Arms Control and Disarmament Agency for the period April 1, 1988 to September 30, 1988. As you know, I was directed by law last year to serve as Inspector General of ACDA as well as for the Department of State.

This report, my first for ACDA, summarizes our audit of the state of security practices at ACDA. We found that insufficient attention and oversight had been provided to ensure that proper procedures were followed. There were also significant ongoing security deficiencies in physical arrangements, documents control, and personnel practices.

Since your own arrival at ACDA, during the course of our review, we have found a stronger commitment among top ACDA managers to tighten up security and initiate necessary improvements. Our recommendations have also been largely accepted and are being implemented.

To give us an overall "feel" for the ACDA organization and the manner in which it carries out the Agency's mission, and to provide a baseline for subsequent OIG reviews, I have scheduled a comprehensive inspection of ACDA for early in 1989. In addition, of course, I will conduct such audits and/or investigations as I deem necessary.

Section 5 of the Inspector General Act requires that you transmit the enclosed report to the appropriate committees of Congress within 30 days of its receipt, together with any comments you may wish to make.

Sincerely,

Sherman M. Funk
Inspector General

Enclosure:

Semiannual Report

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I. Summary

As mandated by Congress, the Department of State Inspector General also serves as IG of the U.S. Arms Control and Disarmament Agency. His first review was a major audit of ACDA's security program and practices made in February-July 1988. It will be followed by an overall Agency inspection in 1989. The new top management at ACDA has cooperated fully with the OIG both in assisting the audit process and in implementing recommended operational improvements.

The audit confirmed previous reports and Congressional concern about security deficiencies at ACDA. The main weakness had been failure to give sufficient attention to security and to provide the oversight necessary to ensure that proper procedures were followed. There were also many specific physical, document control, and personnel security weaknesses. Some had been identified by previous interdepartmental and GAO reviews, but recommended corrections frequently had not been implemented. New top management, however, appointed in April 1988, brought in fresh attitudes and initiated improved security practices.

The OIG survey disclosed significant security vulnerabilities in physical arrangements, communications, document control, personnel, and automated data processing. Most of these were in ACDA's Washington headquarters offices in the Department of State. There were some weaknesses in its Geneva offices and a case of employment nepotism was discovered there.

The auditors made 43 recommendations for improvements. Initial compliance has been good. Of the 34 recommendations addressed to ACDA management, 28 have been accepted and are being implemented (see Appendix 1). The accepted recommendations include all OIG findings on major deficiencies. Significant improvements are now in progress. Most of the unresolved issues concern the degree of appropriate implementation, not disagreement in principle. The OIG will followup compliance implementation closely with both the Department of State and ACDA.

II. Background

A. Establishment of OIG and ACDA

The Department of State Inspector General was designated Inspector General (IG) for the Arms Control and Disarmament Agency (ACDA) by Public Law 100-213 signed on December 24, 1987. The law also directed the IG to conduct a survey of physical, communications, document and personnel security programs, procedures and practices, and to report the results to the Director of ACDA, the House Committee on Foreign Affairs, and the U.S. Senate Committee on Foreign Relations.

ACDA was created on September 26, 1961 by Public Law 87-297, known as the Arms Control and Disarmament Act, to deal with the problem of reducing and controlling armaments, with a goal of world disarmament. The Act authorizes ACDA, under the direction of the President and the Secretary of State, to:

- conduct, support, and coordinate research for arms control and disarmament policy formulation;
- prepare for and manage U.S. participation in international negotiations in the arms control and disarmament field;
- disseminate and coordinate public information concerning arms control and disarmament; and
- prepare for, operate, or, as appropriate, direct U.S. participation in such control systems as may become a part of U.S. arms control and disarmament activities.

To carry out these functions, ACDA's FY 1988 operating budget was \$30.1 million, with a ceiling of 184 full-time positions. As of June 1, 1988, ACDA employed 176 full- and part-time employees, and 161 contractors, consultants, and detailees from other agencies.

ACDA's arms control and disarmament responsibilities are discharged through the Office of the Director (Directorate), four bureaus, various support offices in Washington, D.C., and employees assigned to three bilateral and three multilateral delegations to arms control negotiations in Geneva, Switzerland and Vienna, Austria. The four bureaus are (1) Strategic Programs, (2) Nuclear and Weapons Control, (3) Multilateral Affairs, and (4) Verification

and Intelligence. ACDA's Washington operations and employees are located primarily in the Department of State main building. In Geneva, all of ACDA's delegations are in the U.S. Mission to the European Office of the United Nations and other International Organizations, except for one group in the Botanic building. Administrative support for the delegations is provided by ACDA administrative staff in Geneva in cooperation with the U.S. Mission. In Vienna, administrative support is principally provided by the Department of State.

B. Previous Security Reviews

Over the last three to four years, the adequacy of ACDA's security measures, and information security in particular, has been evaluated by three different reviewers: the General Services Administration's Information Security and Oversight Office (ISOO), which is responsible for overseeing executive agencies' information security programs; an interagency security review team comprised of officials from the National Security Agency, Central Intelligence Agency, and the Department of State; and the U.S. General Accounting Office.

ISOO's January 1985 and prior inspection reports noted that ACDA exercised weak controls over its holdings of Top Secret material. It recommended that ACDA adopt more systematic and thorough measures for protecting Top Secret material and for investigating instances of missing documents. ISOO's February 1986 inspection report commended ACDA for some correction of previously identified problems. However, it also identified ACDA's need to increase security training and initiate a formal self-inspection program. ISOO's June 1987 inspection report noted that ACDA still needed to improve security training, implement self-inspections, and improve classification management procedures.

The interagency security team reviewed ACDA security practices in 1985. In March 1987, the team recommended that ACDA's top management:

- improve ACDA's commitment to security;
- have the director become involved in the security officer selection process;
- improve protection of sensitive compartmented information;

- establish a formal memorandum of understanding with the Department of State for security resources;
- use Department of State video tapes for security briefings;
- brief employees on the hazards of using nonsecure phones for classified conversations; and
- establish an information Security Officer position.

The team also recommended that the Department of State should assist ACDA by:

- enlarging and improving the ACDA classified work area;

- providing oversight for ACDA classified operations;
- providing technical security and counter-measures support.

As a result of security concerns and an alleged employee breach of security requirements, the House Foreign Affairs Committee directed the GAO in June 1987 to investigate the employee's violation and review the extent to which ACDA complied with statutes, Executive orders, and regulations governing protection of classified information. In August 1988, GAO provided the House Foreign Affairs Committee its final report on security compartmented information. A separate GAO draft report on other national security information was also provided to ACDA in August 1988 for comment.

III. OIG Findings

A. Security Programs and Practices

The OIG audit confirmed that there was an overall lack of attention to security and oversight of programs prior to the appointment of a new Director in April 1988. Controls and safeguards were insufficiently implemented to provide adequate security. Top Secret and sensitive compartmented information were inadequately protected against unauthorized disclosure. These deficiencies had been documented since 1984.

Despite Congressional concern, ACDA's top management had left security matters to various Bureau or office heads and to the Security Officer without effective oversight. This resulted in:

- lack of overall authority and direction to assure compliance with regulatory requirements throughout ACDA;
- inconsistent internal security practices among the Bureaus and Offices; and
- insufficient general security awareness and implementation of appropriate safeguards.

There were also serious security deficiencies in physical arrangements, communications, document control, personnel practices, and automated data processing systems. In particular, the audit found:

- Gaps in physical and communications security measures in Washington, D.C. In particular, auditors observed inadequately secured and soundproofed office areas; inadequate work space in the Sensitive Compartmented Information Facility; examples of noncompliance with equipment separation standards; and problems with the use of secure phones. As a result, classified information was not adequately protected from eavesdropping, unauthorized use, and potential removal.
- Weaknesses in classified document security controls in both Washington, D.C. and Geneva, Switzerland. In Washington, D.C., ACDA had not fully adopted past recommendations to store centrally Top Secret documents in each office or bureau and the Information Security Oversight Office's recommendation to implement a systematic self-inspection program. In Geneva, ACDA did not establish the oversight necessary to ensure that delegation members fully complied with the requirement to store

Top Secret and No Distribution documents in the vault of the U.S. Mission.

- Deficiencies in document accountability system for sensitive compartmented information in Washington, D.C. Neither the Department of State, as the agency responsible for oversight, nor ACDA, as the custodian, had completed inventories to verify the accuracy of control records or established sound document controls to provide better protection against unauthorized removal of documents. As a result, ACDA had inadequate assurance that its security compartmented information documents were properly controlled and accounted for.
- Weaknesses in the personnel security program. Although ACDA's program contained the required elements, it lacked adequate recordkeeping procedures to ensure that adjudicative and investigative results of background investigations and unauthorized disclosures were properly documented. It also did not have automated systems to track and keep abreast of security clearance updates and employees' security training. ACDA had not highlighted the importance of security. It had not developed a systematic employee security awareness program, nor did it reflect employees' security violations in performance plans and rewards. Also, the Security Officer's job qualifications were not defined, and a workload study was needed to determine effective security staffing requirements. As a result, weaknesses existed in the security clearance process, employee security awareness training, security regulations violation program, unauthorized disclosures program, and control over non-ACDA delegates' security practices; and
- A need to strengthen one of ACDA's three automated data processing systems in Washington, D.C. ACDA had not implemented recommended controls over passwords or prepared a contingency plan for the Alliance system.

These deficiencies may have contributed to giving ACDA employees the false impression that security is not important, fostering careless behavior and unauthorized disclosures.

B. Nepotism at Geneva

During the course of the security survey, allegations were made that the Agency's Administrative Officer in Geneva had improperly employed his wife and son. Auditors found that the officer's wife had received preferential treatment and that the son

was given a job under his father's direct supervision. The auditors recommended immediate termination of the son's employment, appointment of an appropriate Executive Officer for the wife's personal services contract, and disciplinary action against the Administrative Officer. The recommendations were all implemented and the officer has retired.

IV. Recommendations and Corrective Actions

The auditors made 43 recommendations to correct ACDA's security deficiencies. These were addressed both to ACDA (34) and to the Department of State (9). The latter included reconfiguration of ACDA offices in the Department of State and physical arrangements for adequate handling of ACDA's sensitive compartmented information.

ACDA's top management had already initiated security improvements during the survey and was receptive to OIG recommendations. As of September 30, 1988, ACDA had accepted and was implementing 28 of its 34 recommendations. One further recommendation had been fully met and was closed. Of the five remaining unresolved recommendations, four were accepted, but ACDA's proposed action was incomplete. There was no answer to one recommendation.

Of the nine recommendations addressed to the Department of State, four were being implemented at the end of the report period. There was no disagreement in principle on the other five, but a written reply was not received until after the report period. These are, thus, listed as unresolved.

The on-going implementation covers most of the major deficiencies in physical, communications, document, personnel and ADP security. Even when action is completed, however, top management must maintain close oversight over all procedures and controls to ensure correction of a long-standing disregard of appropriate security practices.

Appendix 1

A. Reports Issued

Survey of U.S. Arms Control and Disarmament Agency Security Programs, Procedures, and Practices;
September, 1988

Special Inquiry into Allegations of Nepotism in Geneva; June, 1988

B. Status of Compliance

Security Survey Recommendations

	Resolved	Closed	Unresolved	Total
ACDA	28	1	5	34
State	4	-	5	9
Total	32	1	10	43

Geneva Nepotism Recommendations

	Resolved	Closed	Unresolved	Total
	-	3	-	3

Note:

- There were no reports or recommendations unresolved for over six months;
- OIG considers recommendations "unresolved" if they have not been accepted or the proposed compliance is inadequate;
- The Department of State responded to the five recommendations listed as unresolved after the report period.